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JAN/98

# Mac

## ADDICT

# STEVE JOBS

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## 14 ways to BEEF UP your BROWSER

And other astonishing tips!

I WONDER IF HE CAN  
PERFORM MARRIAGES!



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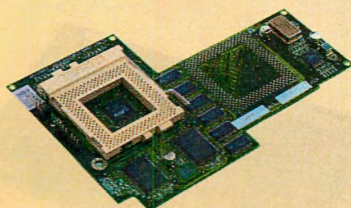
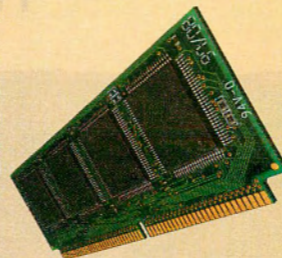


# Stuffers.

## Options & Accessories



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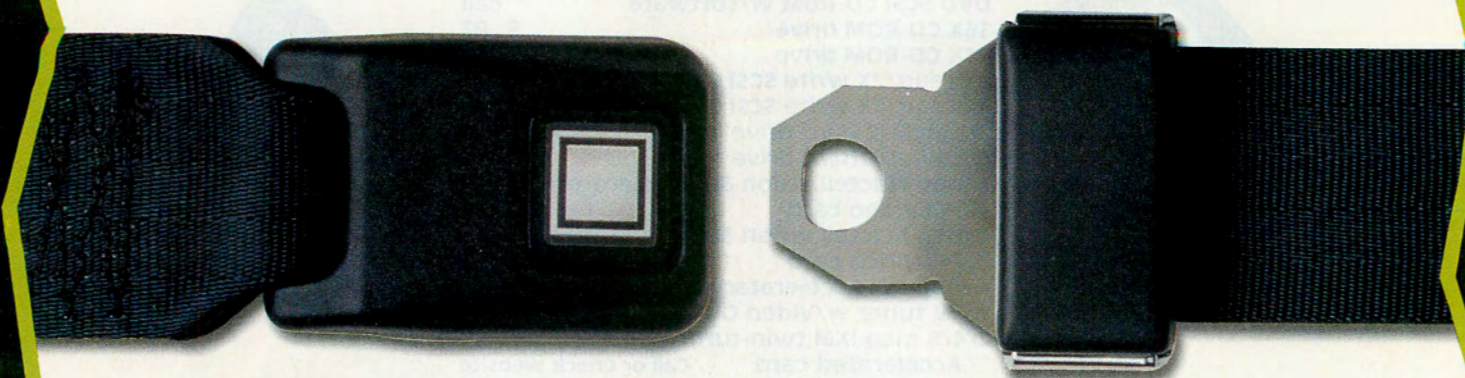
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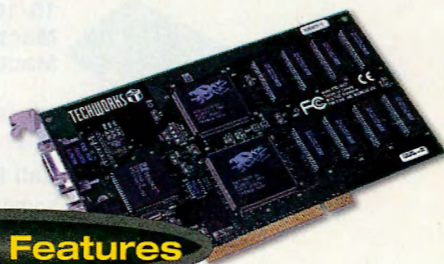


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Check out these Mac games bundled with Power3D.



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MechWarrior® 2 by Activision



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JANUARY 1998

# Mac ADDICT 17

## highlights

### 30 Apple's Future

The past couple of years have been tumultuous times for Mac enthusiasts, what with billions in losses, three CEOs, and products that caught fire. Now, one man has taken the job of leading Apple to new glories. Find out why Steve Jobs will save Apple. **BY DAVID REYNOLDS**

### 40 G3 Gives You Wings

We've got the entire silicon scoop on Apple's third-generation Power Macintoshes. From boards to bytes, you'll know everything about three brand-new Power Macs and a screamin' fast 'Book, too. We know what just jumped to the top of the Wish List. **BY KATHY TAFEL**

### 46 Make Your Browser a Lean, Mean Web Machine

Wrangle your cache, plug-ins, and magic cookies into submission and put the fun back in Web surfing. It's time to decide which browser to use: Netscape Navigator or Internet Explorer **BY J. S. COLT**



Fear not the cards. The future's so bright, you gotta wear shades.

No flying toasters here. These Macs sing "Fly me to the Moon!"

## how to

### 78 Work With PDF Files

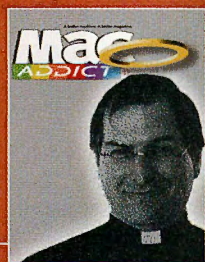
If you're still a believer in the paperless office (or you just want a way to distribute electronic documents) read these ten tips for working with Adobe Acrobat.

### 84 Create Frames (Part 1)

Frames on Web pages are like the Force—they are powerful, and they can be used for evil or good. Don't succumb to the dark side.

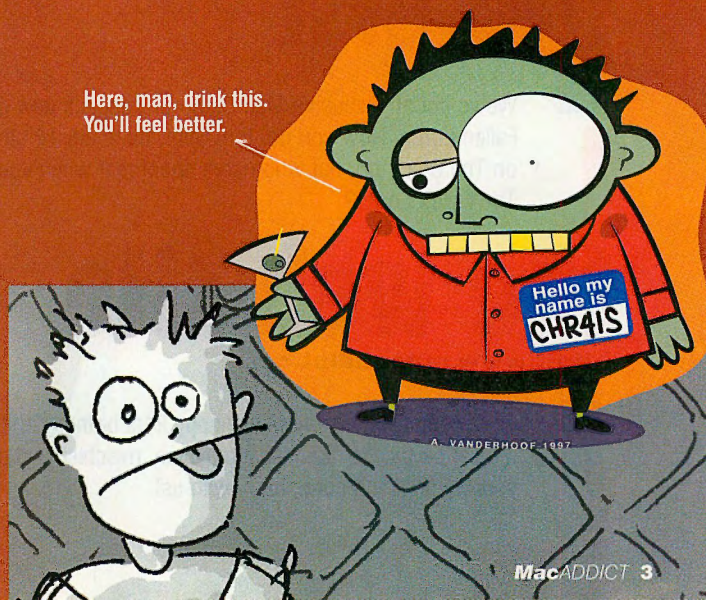


Frames are cool! Just ask these guys. They're cool, don'tcha know.



The cover image was created by Ken Bousquet, who couldn't get the big, chunky 50-dpi image of Steve Jobs past his editor.

Here, man, drink this. You'll feel better.





Remember this guy?  
Well, he's back,  
and he's pissed!



# every month

## 6 Editor's Note

Wow! You asked for more, and we delivered. No surprise there.

## 8 Letters

Maybe it was the phase of the moon, but folks were thinking—and writing—about insanity. Short clips from hip addicts.

## 20 Get Info

Don't call us; we'll call you (Apple's new support policy). We don't hate Microsoft Office 98. Plus, the new MacAddict Index!

## 26 Cravings

Breathing hard yet? You will, after you see these six fab Mac gadgets.

## 54 Reviews

Are G3 upgrade cards worth the money? Also, 3D worlds, text, and an accelerator card, plus a slew of graphics, tools, and hardware.

## 88 Ask Us

Strange desktop rebuilds and other Mac mysteries explained.

## 90 PowerPlay

Instead of the usual preview or interview, this month we give you a new view on classic video arcade games. Since he read the article, Associate Art Director Adam Vanderhoof now plays Dig Dug nonstop.

## 120 Shut Down

The new Steve Jobs Action Figure and a baby Bill Gates. Need we say more?

# the disc



- 12** We've got an exclusive Mac Demo of Bungie's new game Myth: The Fallen Lords. Now you do, too. Sure, there are 14 other fantastic games on The Disc, too, but who cares about that when you can play Myth: The Fallen Lords?

# the web site

<http://www.macaddict.com>

- 18** This month, we wish Apple a happy 21st birthday and treat you to our regular cavalcade of unusual mayhem, mischief, and merriment. Rev up your modem and come party with us!

# Mac ADDICT

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### Volume 3, Issue 1

MacAddict (ISSN 1088-548X) is published monthly by Imagine Publishing, Inc., 150 North Hill Drive, Suite 40, Brisbane, CA 94005, USA. Periodical class postage paid at Brisbane, CA, and at additional mailing offices. Newsstand distribution is handled by Curtis Circulation Co. Basic subscription rates: one year (12 issues + 12 CD-ROMs) U.S. \$39.90, Canada \$43.95, U.S. prepaid funds only. Canadian price includes postage and GST (GST 128220688), (IFM 0962392). Outside the U.S. and Canada, price is \$53.95, U.S. prepaid funds only. POSTMASTER: Send address changes to MacAddict, P.O. Box 58251, Boulder, CO 80328-8251. Imagine Publishing also publishes boot, Ultra Game Players, Next Generation, PC Gamer, RSM, and The Net. Entire contents copyright 1998, Imagine Publishing, Inc. All rights reserved. Reproduction in whole or in part is prohibited. Imagine Publishing, Inc. is not affiliated with the companies or products covered in MacAddict Standard Mail Enclosed Edition: A3, A4, B, B1, B2, B3. PRODUCED IN THE UNITED STATES OF AMERICA.

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HEY NIKKI, WAS THAT YOU GOING OFF ABOUT "THE MOST BORING PIECE OF SELF-SERVING GARBAGE I'VE EVER READ"? EKK. SPARE THE AUTHOR!

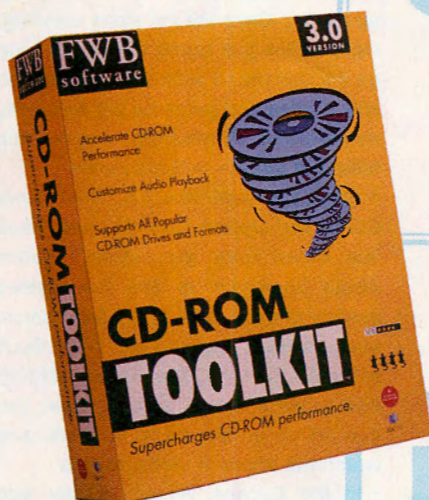
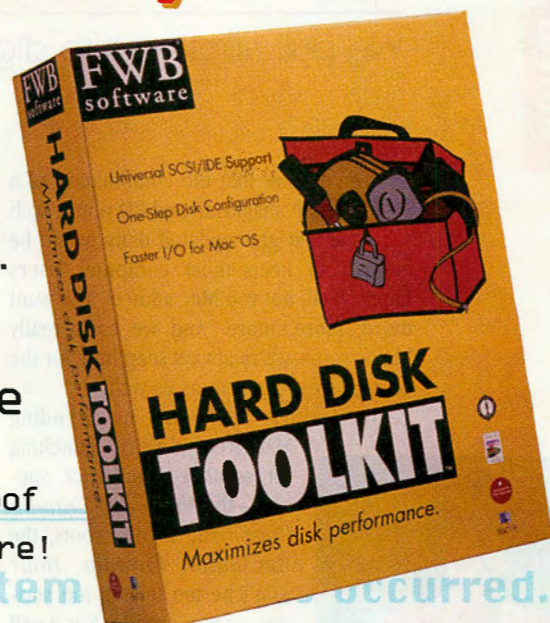




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# editor's note

We pull another two digital rabbits out of our *MacAddict* magic hat.

**Y**ou'd think that the combination of a monthly magazine and CD plus a Web site that gets updated daily would be enough to keep most computer users happy. Well, not you Mac addicts. You want more, more, more. And we can't really blame you—we're always searching for the next greatest, latest thing as well.

To further feed this never-ending Mac frenzy, we're launching yet another *MacAddict* special—the *MacAddict Unradio Hour*. True to our roots, the *MacAddict Unradio Hour* won't be too techie, too serious, or too juvenile. But it will be (or at least we hope it will be) both helpful and fun. You'll find interviews with top Mac developers; news, and our analysis of it; a "TechTalk"

segment that answers those nagging questions like, "Hey, what's up with those 3D accelerator boards? Do they work or what?"; and even a minidrama about a brother and sister team who move to California from the Midwest to work at Apple.

You'll be able to tune in to the *MacAddict Unradio Hour* via the Internet, using a RealAudio player included on The Disc. Every Monday, starting in early January, you'll get a brand-spanking-new show, and during the rest of the week, you'll get replays of older shows along with five minutes of the day's top Mac-only news. You'll even be able to participate in the show. We'll set up special mailboxes to receive tech questions, letters, and other correspondence. You might even get picked to make a live "appearance."

The *MacAddict Unradio Hour*, however, isn't the only new thing we've created recently. Starting with last month's issue,

we debuted the *MacAddict* Software Store, a special place on The Disc where you can go to try various programs for, say, 30 days or some specific number of launches. If you decide you like the program, you can buy it right from the CD. You also can buy many of the programs in the Software Store via traditional means, such as over the phone or via fax.

We think that you'll find the Software Store a great way to shop. You can install and use the software immediately—you don't have to wait for the program to arrive in the mail, nor do you have to drive to a local retail store only to find that just a few titles are actually carried. In addition, you get to use the software before plopping down your cash. Or, in the case of Graphic Converter (shareware that is on this month's Disc), you don't have to fret over trying to contact the program's author to pay him—a task that's harder than it sounds.

The programs we pick for inclusion in the Software Store are generally easy-to-use utilities or plug-ins—things that fit nicely into the space confines of a CD and that can be used with little or no documentation. The program you use to install and purchase the products was created by longtime Mac vendor Aladdin Systems and was designed to be very secure. You should also note that *MacAddict* gets a small percentage of the sales from the programs, although we're not getting rich from it and moving the team to the Caribbean anytime soon.

What's next? For the *MacAddict Unradio Hour*, expect to see improvements in the way you access and interact with the audio. For the Software Store, expect to see the quantity to increase and the quality to remain high. Be sure to let us know what you think of these latest additions to *MacAddict* and how we can make them even better. —Cheryl England

**A**fter our November issue on Mac Secrets, we received tons of info on other Easter eggs from you. Here are a few—expect more in a later issue.

- Check Dan Berger's MacOmelet (<http://members.aol.com/BergerDG/easter.html>) for more Mac OS 8 eggs.

- Open Adobe Illustrator 6.x and open About Illustrator from the Apple Menu. Option-click the logo in the upper left-hand corner. Be prepared for many minutes of fascination. —Ernie Kerns

- In the Big Electric Cat screen in Adobe Photoshop 4.0, once the credits begin to scroll, press Option to speed up the list. Once the list stops scrolling, Option-click just under the Adobe logo on the right-hand side. A hundred or so silly quotes and jokes by the obviously overworked Photoshop engineering team will appear. —Scott Zeiser

- Start up Illustrator 6.0. Hold down Command-Option-Control, and keep 'em down until the "show." Select About Illustrator to see the revised startup display, with funky nicknames, such as R.I.P. popeye, etc. Click the A in the Adobe logo. The display will turn into a black movie screen. Now, you can let up on the keys, sit back, and watch the show. —John Vergos

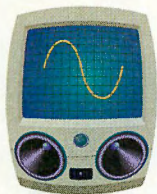
- In the Escape Velocity Easter egg mentioned (p45), the STR resource is not the TRUE easter egg but simply points to it. To access the actual egg, Option-click the EV title screen. You now see the aforementioned poem scrolling up the screen. But wait...this is STILL not the actual egg. You "crack the shell" by pressing Shift-Control-Option-Command-F, just as "MCB 4:35 A.M." scrolls up. If you time it just right, you'll hear "They'll try to kill 'em with a forklift!" The lucky pilot file is then rewarded with the elusive forklift—the ultimate weapon of mass destruction in the Escape Velocity universe...and THAT, my friends, is the Easter egg! —Karth Vahlnar



We're not getting rich and moving the team to the Caribbean anytime soon.

More Easter Eggs





# SOUNDMAKER™

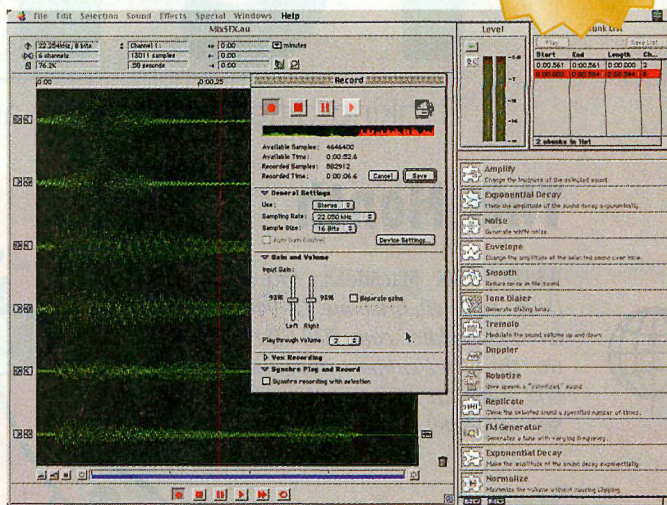
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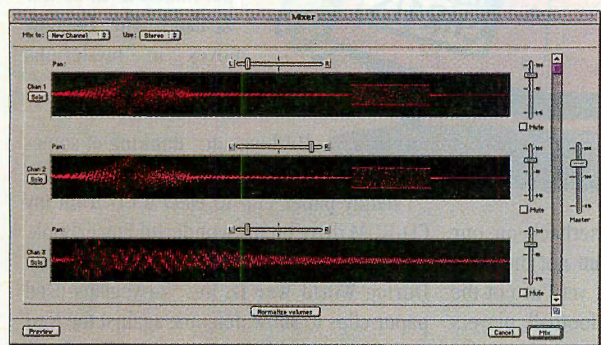
Whether you're someone wishing to have fun with sound, a multimedia artist creating audio for a content title, a webmaster adding pizzazz to a web site, or a developer wanting to add custom sounds to your program — SoundMaker is the must-have audio program for you!

SoundMaker gives you all of the tools you need to create, record, edit, process and mix digital sounds. Import sounds from any source, even from a QuickTime movie, or record straight from your Mac's microphone. Use SoundMaker's multiple channels with full "drag-and-drop" support for fast, streamlined editing. SoundMaker's powerful engine even allows multiple open sound files to be played back simultaneously.

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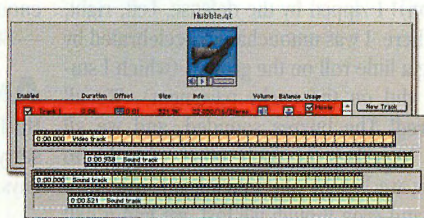


*SoundMaker's multitrack mixer allows you to actually hear the entire mix, including level changes and panning made to each channel during the preview process. This makes it quick and easy to get your desired results.*

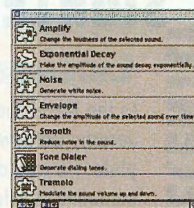
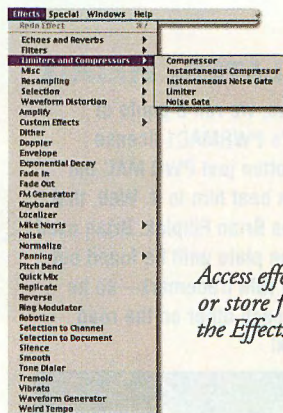
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# letters

Thinking different, insanity, and sheer craziness cap off the month.

## This Month

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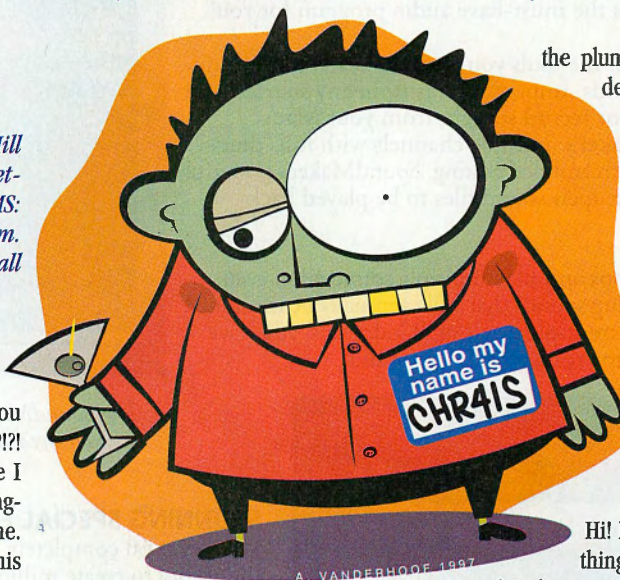
**GET ON, GET ACTIVE.** Talk to us and talk to other Mac addicts at the Web site.

### You Do, Apparently

OK, I'm REALLY tired of this. Will you PLEASE stop spelling my name CHR4IS?!? My name is CHRIS. C-H-R-I-S. Every time I get an issue, it's addressed to Chr4is Wang-Iverson. It's REALLY starting to bug me. What kind of a freak has a number in his name?! —CHRIS WANG-FREAKING-IVERSON

### HUP, HUP, HUP!

Today we had this awesome after-school flag football game. We are not that good a team. We were down by two touchdowns. We had the last possession of the game. We were



the plums I was about to have for dessert (not in person, of course—just Her name emblazoned across the lid). I believe She was endorsing the plums inside the jar. They were delicious!! By the way, the plums were Del Maine branded, and I think they came from Australia, although I purchased them in New Zealand. The DogCow moves in mysterious ways!! —JO MEDER

Hi! I was just thinking of something as I was using my lovely, handy paper clip to eject a CD from my CD-ROM drive on my wonderful PowerBook. The paper clip has an interesting history. During World War II, the Norwegians used paper clips to show defiance against the Nazi occupation of their country. (The Nazis banned paper clips in response!) This made me think...maybe people who are Mac addicts could wear paper clips in order to show defiance against the greatest evil the world has ever known, Bill Gates. Or, perhaps, if we could get a paper clip big enough, we could eject Bill from the planet. —BEVERLY WESTERBERG

### AND YOUR POINT IS?

Hi! I had this great Reuben-istic PC-bashing story, but then I decided not to lie to you guys. Never mind. —ELLIOT COLE

Oh, man! Now my Mac is among those named in This Old Mac. Damn, I guess I should be depressed or something. —DAVID W. PAYNE

### HERE'S TO THE CRAZY ONES

I'm sitting here basking in the cool, skin-bronzing glow of the twin 17-inch eyes of my Mac, reading the October 1997 issue of your 'zine. A thought has suddenly struck me. Wouldn't ya think that with all that technology, the Monkey Boys' monitors (p50) would

close to the goal. The quarterback on our team yelled, "Hike!" OK, I am not the most athletic person in the world, yet I'm not the least, either. All the good football players were deep in the goal, but I wasn't too far from the quarterback. I was yelling and screaming for the ball. Suddenly, I thought about the new Apple commercial and yelled, "THINK DIFFERENT!" The quarterback looked at me and tossed the ball at me, and I caught it (which only happened twice in the season)! I zipped by the defense. Left, right, and there. I was untouchable. I celebrated by doing a little roll on the ground (which I stupidly did on the rocky pavement). We all cheered! The buzzer sounded, and we all gave high-fives to each other. Thanks to Apple, we lost by one touchdown instead of two, and even though we lost, we had a hell of a time doing so! —JEROME ESPINO

### THAT'S AMAZING. REALLY.

Did you know that Macintosh spelled backwards is Hsotnicam? I could make a new video-capture product with that name.

—ED LATIMER, HSOTNICAM DIRECTOR, FOUNDER, AND PRESIDENT

Just thought I'd drop you a line about a Clarus sighting. There She was, sitting on the top of

## SIGHTED

### LICENSE PLATES, REDUX

In the November issue, we ran a photo of Jeremy Goldsworthy's PWRMAC1 license plate. He would've gotten just PWR MAC but someone in Michigan beat him to it. Well, that person turns out to be Brian Filipiak. Brian used a "POWERPC" license plate until he found out that the word was an IBM trademark—so he switched. If you see each other on the road guys, be sure to honk!





## YOU KNOW YOU'RE A MAC ADDICT WHEN...

...you have vivid nightmares of the ResEdit jack-in-the-box stabbing you to death with a resource fork. —Adam Newbold, Louisville, KY

...you can spot your Mac in every family vacation photo. —John Willis, San Diego, CA

...you still try to sign on to eWorld. —Adam Claude

...you put your PowerBook to sleep when you take naps. —Richard Halvorsen

be turned on while they commune with their Macs??? Or have they reached a higher bandwidth of communication than us?? They sure seem to be smiling a lot. ... —DANIEL KOCZERA

In response to the "You know you're a Mac addict when...you can't walk through the hall without hearing sounds for Marathon" in the November 1997 issue (p12)—if that happens to you, you might be insane, too. Woah! Better get my magnum out, aliens in the bathroom! —MICHAEL "EGGPLANT" WOHL

## YOU'RE A SARCASTIC LOT, AREN'T YOU?

I called Wacom, and they don't have any of those \$26.99 PL-300 Display Tablets (Nov/97, p37). All they have are the \$2,699 ones, but if you guys send me one, I'll pay you \$30. —ERIC HARVIEUX

Just read your review of the new Wacom LCD tablets. As soon as I'm finished typing this, I'm going to run out and buy a bunch of 'em! For \$26.99, how can I go wrong!? How can Wacom stay in business with such low prices? —HARRY HUNSBERGER

P.S. Great magazine. Are you in the market for a proofreader?

Wow! A large Wacom tablet with an active-matrix LCD display for only \$26.99! I'm going to buy five of them!! It's especially incredible when you realize that a small Wacom tablet costs \$150...and an active-matrix LCD panel of that size costs a grand or two!! It's obvious that someone got too

close to the Reality Distortion equipment you had set up for your benchmark test on page 30 and proceeded to proofread that report! —JON GREGORY

## COOL!

In the November 1997 issue, you had the section about Easter eggs that were caught and not put in the final release of certain products (see "The Forbidden Eggs," p44). There was one where you said that Apple didn't keep the winking Mac. I was using ResEdit one day and opened the System file for OS 8 to see what it was like. For no reason, I opened the cicc resource and found the winking Mac icon! —DAVID BORUD

Hey, did you know you can license the Apple logo for your Web site? NARF! I did, and it's really cool. To get it, go to: <http://www.servers.apple.com/AppleLogo>.

—BENNETT PRESCOTT

## HOW DID IT END?

You should watch the movie *The Game*. There are Macs everywhere. I think I was the only one that noticed though, 'cause I was the only one screaming the model numbers out as the Macs appeared on the screen. I was still screaming as they threw me out of the theater.

—GARTH LETTS, SAN DIEGO

## OK! WE GIVE!

The Myth demo is out! You have to put it on The Disc! Please, please, please! If you don't, I will put stinky mooses in your bathtub! —Andrew Bateman

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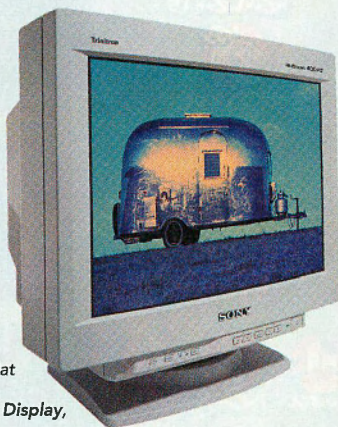


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Right out of the box, the Sony VAIO Tower (shown with VAIO 220VS Display) has all the software and processing power needed to explore digital imaging, video editing and website publishing.



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**SONY**



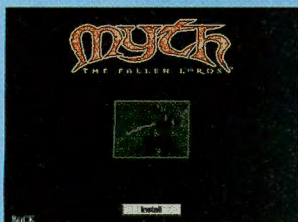


# the disc

Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth! Myth!

the disc

## HIGHLIGHTS



**U**h, did we mention we have the demo of Myth: The Fallen Lords on The Disc? See a movie, too.

## SOFTWARE



**G**et full descriptions of all this great software, then install it!



## DEMOS



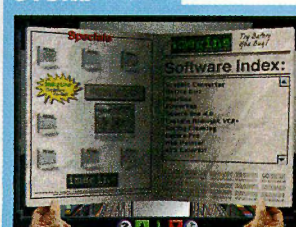
**L**aunch demos of Galapagos, Killing Time, and Zion National Park. Oh, we've also got a demo of Myth: The Fallen Lords.

## INDEX



**C**lick here for a handy jumping point to all the screens of The Disc, including this month's contest.

## STORE



**U**se the index to get to our new software store. The easiest way to get to Try Before You Buy is to click on the "I."

**I**f you can't tell, we're pleased as punch to be able to offer you, our valued reader, an exclusive Mac demo of Bungie's awesome new game, Myth: The Fallen Lords. In fact, we can't talk about much of anything else because all we've done for the last month or so is play Myth: The Fallen Lords. Every day. For hours at a time. Cheryl better not notice. —Kathy Tafel



## GETTING STARTED

1. Pop The Disc into your CD-ROM drive.
2. Double-click the MacAddict Tour icon for PowerPC or 68K Macintosh.
3. Have fun!



68K



PowerPC

## REQUIREMENTS

Any Mac can access the shareware, demos, and System software from the Finder. Accessing the full CD-ROM interface requires 12MB of real RAM with System 7.1 or earlier, or 16MB of real RAM with System 7.5 or later.

**GETTING HELP:** Problems with The Disc? Go to <http://support.imaginemedi.com>.



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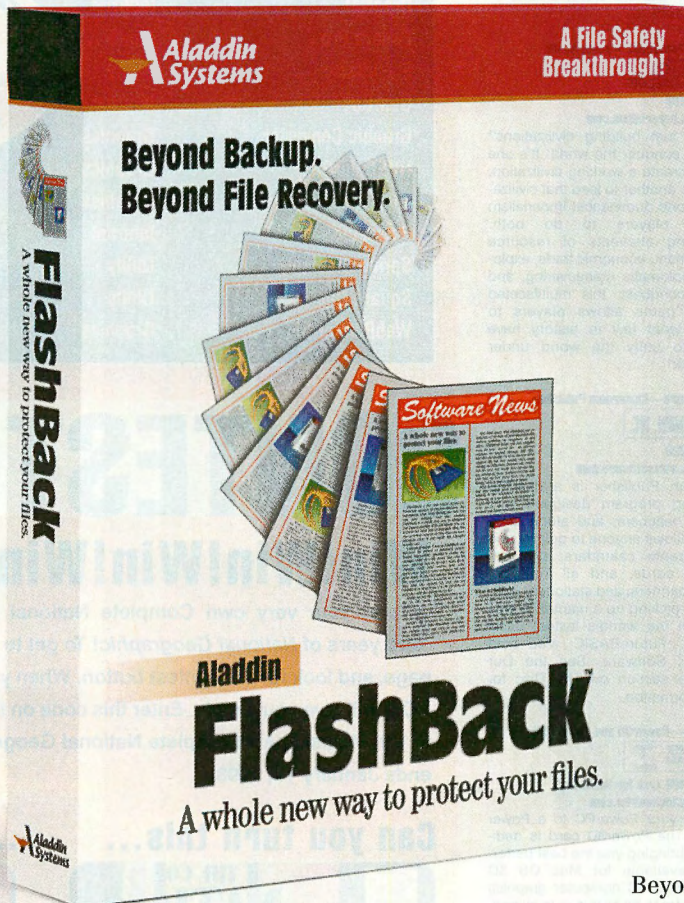
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Plus, FlashBack works with both local and networked files.

### Save Disk Space

Keep multiple versions of your important files without gobbling up disk space. FlashBack makes only one complete copy of your file. Previous versions are tracked through tiny "diff" files containing only the changes, or differences, between one version and the next. The result? You can save five, ten, twenty or more versions of a file in less room than you would use hitting 'Save as' just a couple of times!

### Time & Date

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## OUR DISC SPONSORS

the disc

To find immediate information from our sponsors, go to the Index (Option-click any help screen). Or you can wait until you see a message from them in the lower right-hand corner of the main screen. Clicking on the message causes a TV screen to slide down from the top of the page, showcasing more information. You also can access sponsor information from the main window in the Finder.

### Aspyr Media



888-212-7787  
http://www.aspyr.com

### Bonkheads Deluxe

Race through 190 levels of unparalleled chaos as you control Grag & Thog Bonkheads on their mission to rid the underworld of marauding pests. Stunning graphics and an included level editor will keep you playing till the wee hours. Play alone, two on the same computer, or even networked. Combat your way through 12 different underworlds such as Ancientville, Waterville, Trollsville, and more. So addictive you'll develop a hump!

### Mah Jong Parlour

Play the game of tiles and strategy—solo, networked, or over the Internet. Mah Jong Parlour is the true game of mah jong, which is similar to gin rummy but has intriguing subtleties for engaging gameplay. MJP is easy to learn and a challenge to master!

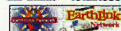
### Bungle—Myth



800-295-0080  
http://www.bungle.com

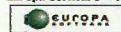
Myth is a tactical-level game of epic battle set in a fantasy world. A multi-metric game, Myth gives gamers unprecedented freedom to view the terrain and their forces, orbiting around their heads or zooming in for a close-up. Mastery of formations and disciplined movement of armies is critical to success. Myth features cross-platform networking, while Bungle's MetaServer system makes Internet play simple. Myth includes maps designed for networking and alternate networking scenarios such as Assassin and King of the Hill.

### Earthlink—TotalAccess



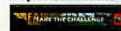
800-395-8425  
http://www.earthlink.net  
TotalAccess is Earthlink's complete software and Internet connection package. It includes Netscape Navigator, award-winning Internet access software, and everything needed to register for complete Internet access in less than five minutes. After the \$25 setup fee, unlimited access is provided for \$19.95 per month. Round-the-clock tech support is provided via an 800 number.

### Europa Software—Web Quick



http://www.europasoft.com  
Frustrated by Bookmarks? Web Quick tracks every page you visit and automatically organizes them by site. It lets you create custom topics—and keeps them all at your fingertips with handy pop-up menus. Web Quick even converts existing Bookmarks. No wonder MacWEEK called it "the first Web utility that is essential!"

### Graphic Simulations—F/A-18 Hornet



800-580-4723  
http://www.graphsim.com  
An award-winning flight sim utilizing cutting-edge technology creates a truly fluid, high-speed graphic adventure. Multiuser network battles and a

richly detailed multimedia classroom add to this Mac epic. New to F/A-18 Hornet version 3.0 are exciting features such as rolling terrain, highly realistic atmospheric effects, multimedia classroom, virtual cockpit, commandable wingmen, and much, much more.

### Green Dragon Creations—Gridz



888-624-0200  
http://www.gridz.com; gridz-orders@greendragon.com

Green Dragon Creations is proud to introduce Gridz, a fast-paced strategy game for all ages. You lead an army of ToolBots: Builders, Strikers, and Hackers. Your objective is to take over NetSpace. Watch for enemy Toolbots, who will try to destroy your domain. Gridz is available now for only \$29.95.

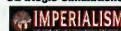
### MacSoft—Civilization II



800-228-2714  
http://www.wizworks.com/macsoft

Make every critical social, economic, and political decision as you build an empire to span history. Compete against some of the greatest leaders of all time. It's strategy. It's discovery. It's your destiny. So plan your every move carefully. Because in this game, you either stand the test of time or you're history.

### Strategic Simulations—Imperialism



800-234-3088  
http://www.imperialism.com  
Tired of just building civilizations? Why not conquer the world! It's one thing to create a working civilization, and quite another to lead that civilization to world dominance! Imperialism inspires players to do both. Combining elements of resource management, economic trade, exploration, diplomatic maneuvering, and military conquest, this multifaceted strategy game allows players to attempt what few in history have dared: to unify the world under one leader!

### STAZ Software—Classroom Publisher



800-348-2823  
http://www.stazsoftware.com  
Classroom Publisher is a desktop publishing program designed with schools, teachers, and students in mind. It allows anyone to quickly and easily create calendars, clip art, greeting cards, and all kinds of reports, banners, and stationery without even picking up a manual! It was written in the world's fastest Basic compiler—FutureBASIC, also sold by STAZ Software. See the Our Sponsors section on The Disc for more information.

### TechWorks—Power3D and PowerCPU



800-888-7488 (ask for Game Guy)  
http://www.techworks.com  
Upgrade your PowerPC to a Power Arcade! The Power3D card is dedicated to bringing you the best performance available for Mac OS 3D games. Most 3D computer graphics solutions try to be all things to all people. No compromises here. The Power3D was designed for one thing only, and that is great games! This is truly the most awesome gaming card available on the Mac! The Power3D does not replace your 2D graphics; it works with your existing graphics card to provide you the absolute in 3D performance. Install the Power3D in your PowerPC (requires one available PCI slot in your system) and use the provided pass-through cable to turn your PowerPC into a Power Arcade system!

# SOFTWARE STORE

## New!New!New!New!New!New!

### Try Before You Buy

Armchair shoppers, rejoice! The MacAddict Software Store is open for business. Each month, we'll bring you full trial copies of games and utility software so that you can give them a shot before committing the contents of your wallet.

To reach the store from the CD, go to the Index and click on the Try Before You Buy button. Once you're in the store, click on the Index button at the bottom center of the screen for our product list. Click on the name of the program that you want to find out about. If it looks good to you, click on the Try It button to install.

## This Month's Inventory

Battle-Girl	Game
Cap'n Midnight VCR+	Utility
DragNet	Internet
Eudora Pro	Email
FlashBack	Utility
GearBox	Internet
Graphic Converter	Graphics
HVSColorGif	Graphics
HVS JPEG	Graphics
PowerTab	Internet
Spring Cleaning	Utility
Square One	Utility
WebPainter SE	Graphics

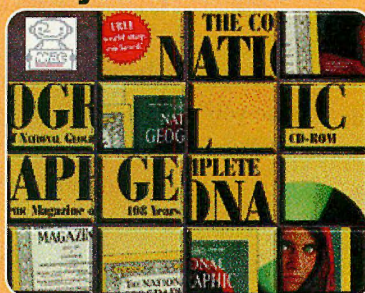


# CONTEST

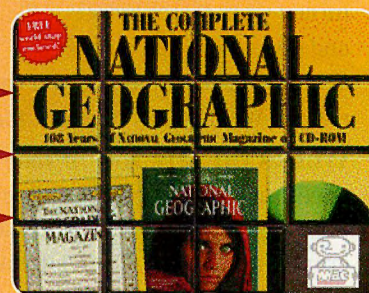
## Win!Win!Win!Win!Win!Win!

Get your very own Complete National Geographic CD-ROM—108 years of National Geographic! To get to the contest, go to the Index page, and look for the contest button. When you solve the puzzle, the CD-ROM will give you a code. Enter this code on the Web site for your chance to win Mindscape's Complete National Geographic on CD-ROM. Contest ends January 15, 1998.

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# the disc

## KILLER GAME

### Myth: The Fallen Lords

**T**he entire *MacAddict* staff has been drooling over *Myth: The Fallen Lords* for a year already. Now you'll be able to try out *Myth: The Fallen Lords*, too, with *MacAddict's* exclusive Mac demo. This stupendous game blends 3D gore with a stunning Goth soundtrack, microscopically detailed landscapes, and incredibly real physics. And that doesn't even begin to describe the gameplay. We'll let some screenshots (taken using a 3Dfx card) paint the rest of the picture.

Macaddict17:Software:Commercial Demos:Myth MacAddict Demo



**T**o survive the Five Champions scenario, you'll need to take big-time advantage of the terrain to win. None of your heroes may die.



**E**nriching the *Myth* experience is one reason to buy a Power3D card (see review, p60). The card shows off how detailed 3D art can be: There are raindrops on the water surface, shadows of all units, more-fluid blood, and reflections in the water.



**M**yth: The Fallen Lords' 3D engine enables incredibly rich scenarios. As the dwarf picks off the thrall, body parts fly into the ravine below.



**D**warves fling their missiles to destroy a magical artifact as paralyzed archers try to hold off the thrall and the soulless.

## WINNER!

**C**ongratulations are in order for Austin Reed Cline, who won the October CD-ROM contest. Austin correctly entered the secret code (DJMEMC), and is now the very proud owner of Steinberg's ReBirth!

## EEK!

**T**he Disc is hybrid again! This time you'll get Personal MACLAN Connect, which lets you share files, printers, and hard drives between Macs and PCs. Yet another reason for your boss to let you have a Mac at work (although you'll have to install it on her PC).

## GAME DEMOS

**T**he Disc is packed with more games than just *Myth: The Fallen Lords*. Check it out:

- Ares
- Bonkheads Deluxe
- Civilization II
- Close Combat
- F/A-18 Hornet
- Galapagos
- Gridz
- Imperialism
- Killing Time
- Mah Jong Parlour
- Postal
- Settlers II
- Shadow Warrior
- X-Plane



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INTERNATIONAL ROAMING  
NEWSGROUPS  
FREE INTERNET USER GUIDE  
COMPLETE SOFTWARE FOR WINDOWS OR MAC  
CHOICE OF BROWSER  
800# ACCESS OPTION



# the web site

## DECEMBER / JANUARY

By Mark Simmons & Jennifer Gwartz

the disc

### MONDAY

**15** Boy, it's cold out there. Break out your long underwear while we pick out a **Site of the Week** to keep you toasty warm.



### TUESDAY

**16** Today we wheedle a **Web Exclusive** out of one of our illustrious staff members. Y'know, it's like pulling teeth.

### WEDNESDAY

**17** In our penultimate **Weekly Q&A**, we challenge our readers to field those tricky questions that your online editor couldn't solve.

### THURSDAY

**18** Help! Help! The **MacAddict** staff bound me to my chair with holiday lights! Must reach keyboard...must post **Shareware Pick of the Week!**

### FRIDAY

**19** Now that we've reached the end of the week in one piece, we'll spill the beans on our **February issue**. Ooh! Aah!

**22** We're your home page for the holidays, with our seasonal Web site makeover!

**23** We have the week off, so entertain yourselves for the next few days.

**24** Ooh! Last chance to pick up a stocking-stuffer copy of Mac OS 8 for that special Mac addict in your life.

**25** Some of us are dancing with sugarplums, while others are snug in bed. May your holiday be as good as ours!



**26** If you're British (and even if you aren't), happy Boxing Day! And pick up those Styro-foam peanuts.

**29** And, the envelope, please! We present for your delectation our first-ever **Site of the Year**.

**30** Survey says... good riddance! We take the pulse of our readers on a few of 1997's hot-button issues.

**31** Bid goodbye to our **Weekly Q&A** feature, as Mark Simmons ties it all up in one last barrage of questions and answers from our loyal readers.

**1** Happy New Year!!!



**2** Happy birthday to **Apple Computer**, which officially turns 21 on January 3. We'll decorate for the occasion.

**5** On the anniversary of **Bozo the Clown's** 1959 premiere, we pick a **Site of the Week** with all kinds of media-rich features.

**6** It's getting to be about that time again, when thoughts turn to a freshly minted **Web Exclusive** from the minds of **MacAddict's** crusty staff.

**7** Wipe away your tears, gentle reader. **Weekly Q&A** is no more, but we'll have something just as nifty to take its place.



**8** We select a **Shareware Pick of the Week** fit for the King. We wish Elvis a happy 63rd birthday, wherever he may be.

**9** When in doubt, make art! Better yet, get someone to make it for you and install a whole new **Reader Art Gallery** wing! Check out the new works and the new look.

**12** Today we wake you up bright and early, with a **Site of the Week** that features up-to-date news about the Mac.

**13** Another update of David Reynold's popular and informative **Practical Mac** site comin' atcha!



**14** Say, it's Benedict Arnold's birthday, but we won't betray your expectations. Tune in for a **special surprise**. Shhhh!

**15** Share and share alike, as we at **MacAddict** always say—except in this case, when we award the **Shareware Pick of the Week** to the one that we like the best.

**16** We close the door on 1997 with a nostalgic review of the year's high- and lowlights. Plus: the results of our reader survey (see December 30).



# Out of Your Mind!

## Introducing Nexus GA from ATI

From your brain to the big screen and the printed page faster than you can change your mind – ATI's Nexus GA will dramatically improve the graphics capabilities of your Macintosh computer. Specifically designed for graphics professionals and content creators, ATI Nexus GA offers high-performance 2D and 3D graphics in one affordable, easy-to-install board.

Nexus GA offers no-compromise 2D graphic performance with true color in all the modes you demand up to

### 2D Performance – MacBench 4.0

ATI NEXUS GA	316
IXMicro TwinTurbo 128M8	297
Matrox Millennium	254

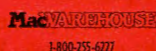
Larger Numbers are Better

1920x1080. Work better and faster in all your favorite applications like PhotoShop, and Infini-D, with 8MB of WRAM memory upgradeable to 16MB.

Plus, with Nexus GA's 3D functionality and QuickDraw 3D™ support you can add 3D elements to any of your design and multimedia projects. Nexus GA will take your content creation to new heights with a full suite of 3D tools and workstation-class performance.

And because Nexus GA is from ATI, makers of award-winning graphics accelerators for Macintosh computers, you can rest easy that Nexus GA will work seamlessly with your applications. Nexus GA – fastest, high resolution true color performance – to choose anything else you'd have to be out of your mind.

© Copyright ATI Technologies Inc. 1997. ATI, 3D RAGE PRO, and NEXUS are trademarks, or registered trademarks of ATI Technologies Inc. All other company and/or product names are trademarks and/or registered trademarks of their respective manufacturers. \*MacBench 4.0 Hi Res Publishing Mixes Tested on a PowerMac 9600/200 32MB. All Boards had 8MB. Test Mode: 1280x1024x75 Hz @32bpp. Tested using Driver Versions: ATI RAGE PRO 3.0 / IXMicro TwinTurbo 4.0.2 / Matrox Millennium 2.10. Features and specifications are subject to change without notice.



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# get info

Living clones, Apple financials, the MacAddict Index, and more!

## Apple Mimics Microsoft

*Or, how to piss off your customers in two easy steps*

READ THE  
PRESS  
RELEASE in  
its entirety  
at [http://  
product.info.  
apple.com/  
pr/press.  
releases/  
1998/q1/9710  
13.pr.rel.  
supportpol.  
html](http://product.info.apple.com/pr/press.releases/1998/q1/971013.pr.rel.supportpol.html).

**F**or Mac fanatics, it was bad enough seeing Bill Gates looming over Steve Jobs' head at the Mac-world Expo last August. We got over that, for the most part. But the way Apple introduced its new support policies was bound to cause grief. A press release entitled "Apple Mirrors Microsoft's Support Policies" is just not the way to gain the love of your average Mac addict.

Instead of almost lifetime support, new Mac owners will now get just 90 days of free telephone support. This is not so recent a change, but now the company is actually checking to make sure you've really bought a Mac in the last 90 days before giving support. Previously, you could call 800-SOS-APPL and get support on just about any matter. Now, to get that free support, you have to call a different number (800-500-7078) and you have to tell them the Support Access Number that came with your new Mac. (You

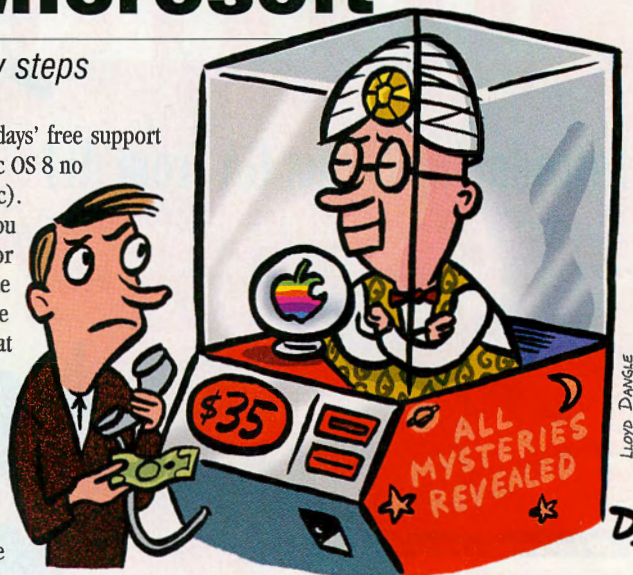
are still eligible for 30 days' free support with the purchase of Mac OS 8 no matter how old your Mac).

After those 90 days, you have a few options for support. First, there's the Web. Apple has extensive support resources at <http://www.info.apple.com>. We recommend especially the Basic Mac Troubleshooting area. Unfortunately, this option doesn't help much if you don't have access to the Net or if your problem is that you can't get connected. We'd like to see Apple put more of this information in the Mac OS Info Center.

Also free is Apple's automated response system, available from 800-SOS-APPL. To get to this area, press 1, 1, 1, 2, after which you'll be presented with this menu: 1-Sales; 2-Performa; 3-PowerBook; 4-Software; 5-MessagePad or eMate; 6-6100, 7100, or 8100 Power Macs; 7-Other Power Macs; and 8-Peripherals. Eventually, you'll get to a point where a helpful technician reads the appropriate part of your Mac's manual to you. Apple also encourages you to find a repair shop or user group for more advice. To find one near you, call 800-538-9696 or use Apple's Web site at <http://buy.apple.com>.

If those options don't help, you can choose to pay for support from Apple. For a one-time problem, call 800-646-7582 and pay \$35. To purchase a support contract that offers extended service, call 888-275-8258. That these options are similar to Microsoft's should not have been pointed out. These are necessary changes Apple had to take to help make itself profitable.

To test the system, we chose a problem that we've had around the office lately: We try to print, but PrintMonitor crashes with a



Type 10 error. Apple's Web site, especially the Basic Mac Troubleshooting area, almost gave us the right answer: Make sure AppleTalk is active in the Chooser. But then it additionally suggested zapping the PRAM, which just happens to reset the network port, which is also a symptom of the problem. Apple's phone response system was next to useless, with no information more recent than System 7.5 update 2.0.

Then we played dumb with Apple Technical Support. The nice folks gave us a free call because we told them that we bought Mac OS 8 "a couple of weeks ago." We tried to feed the technician the right solution by telling him we just replaced the motherboard battery. He did mumble something about default ports but insisted that Type 10 errors could be fixed by holding down the Shift key at startup.

The real answer would be for there to be no problem: PrintMonitor should present a dialog box that says, "Check your AppleTalk control panel and Chooser, dummy," instead of crashing. But the moral of the support story, in our case, is that the Web is almost perfect, the phone FAQ is frightening, and Apple technicians need to be better listeners. —KT

### Other ways to mimic Microsoft

Mirroring Microsoft's support policies is just the start. Here's a sneak peek at upcoming Apple press releases:

#### APPLE MIRRORS...

##### ...Microsoft's financial results

Company posts profit margins of 80 percent—stock soars into the 100s.

##### ...Microsoft's Internet strategy

Bundles Internet Explorer with operating system and requires its installation on every Mac.

##### ...Microsoft's acquisitive nature

Buys Adobe Systems, San Jose Mercury News, Disney, and local Chevy's restaurant franchise.

##### ...Microsoft's OS and application integration

Reabsorbs Claris, gives ClarisWorks engineers secret system calls.



# Clone Alone

*One foot's still out of the grave*

**T**he rumors of cloning's demise have been exaggerated. When Apple bought out Power Computing, and Motorola left the Mac OS market, the media declared cloning dead. Yet three companies—each with a different approach—are still selling Mac OS-compatibles.

**UMAX** UMAX Computer, now the big kid on a much smaller block, signed a license agreement with Apple to sell Super-Mac compatibles—complete with Mac OS 8—through mid-1998. UMAX won't do anything to rock Apple's boat, but it offers licensed, certified Mac compatibles. Still, some choice is better than none, and UMAX has a reputation for making solid Mac OS compatibles.

**PowerTools** PowerTools sells compatibles based on the same logic boards as UMAX, but its X-Factor line replaces the Apple-certified processor card with an uncertified PowerPC G3 upgrade module—and is advertised as the first G3 Mac. Apple hasn't certified these machines and is unlikely to do so. PowerTools is trying to negotiate future licenses with Apple and, in the meantime, is shipping the X-Factor line.

**MacTell** MacTell, also a UMAX sublicensee, doesn't claim to ship a PowerPC

G3-based Mac. Instead, the company buys its logic boards from UMAX and offers compatibles with either the original processor—typically a 603e—or a preinstalled PowerPC G3 upgrade. "We don't want to beat Apple to machines," says MacTell Vice President Pat Berry, "we just want there to be a choice."

## Choicest Clones

Considering a clone over an Apple-branded Mac?

- Shop around. Compare prices between the various cloners and Apple.
- Compare warranties. Don't get stuck high and dry if trouble strikes.
- Consider your risk level. The clone vendor may not be around a year from now. If that doesn't matter to you, then choose the machine that gives the best performance for the money.

Right now, the safest choice other than Apple is probably UMAX, as it will survive no matter what happens to Mac licensing. MacTell, with its conservative approach and willingness to work with Apple, may also be a safe choice. Power "we'll-ship-what-we-want" Tools touts higher performance Macs, but this confrontational style also leaves the company vulnerable to action from Apple. —DR



get info

## What Ever Happened to DayStar Digital?

DayStar Digital, the premier manufacturer of multiprocessor Mac clones, still exists, but it's no longer making Mac clones. It shut down its manufacturing facilities after last August's Macworld Expo. DayStar's Gary Daly says that after former Power Computing wheeler-dealer Joel Kocher took a confrontational stance at Macworld regarding cloning, DayStar's sales dropped and investors started getting nervous. "He took out the Mac OS industry in one fell swoop," says Daly. Although the company is no longer making Mac clones, DayStar's nPowr multiprocessor upgrades are still sold through TechWorks, so those who need extra power can still pump up their Macs with a second processor. Look for accelerator news at our Web site.

## FALL

Let it all hang out in our Fallout contest. Pop on over to the MacAddict Web site at <http://www.macaddict.com/contest> and play a game of hangman. Once you figure out our magic word, enter it at the Web site, or send it to: Post-nuclear Fallout Contest c/o MacAddict, 150 North Hill Drive, Suite 40, Brisbane, CA 94005. A random drawing on January 15, 1998, will decide the winner of MacPlay's Fallout, the all-new, science-fiction role-playing game.

## OUT

## 20th Anniversary Alternative



**R**arely does Apple air its outtakes. Most products that don't make it to store shelves are never seen by consumers, the press, or even out-of-the-loop Apple employees. But the design alternative to the 20th Anniversary Mac is no dirty little secret. The Domesticated Mac, a revamped version of the Color Classic, stands on four rounded nubs and features twin metal doors with an analog clock that swivels to look at you whether the doors are open or closed. The cuddly creature was designed by Daniele De Iuliis and Jonathan Ive of Apple's Industrial Design group between October and November 1996. —NE







# Myth

THE FALLEN LORDS

kicks so much  
butt on 3Dfx that  
we'll give you  
the hardware  
to prove it!

## The Myth: The Fallen Lords 3D Contest

### First Prize

PowerMac 6500/250 with 32MB RAM, a 2GB hard drive, a Power3D® 3Dfx card, a 15" monitor, and a copy of Myth: The Fallen Lords.\*

### Second Prize

256MB RAM, a Power3D® 3Dfx card, and a copy of Myth: The Fallen Lords.

### Additional Prizes

Free copies of Myth: The Fallen Lords, posters, hats and T-Shirts.

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[www.bungie.com](http://www.bungie.com)

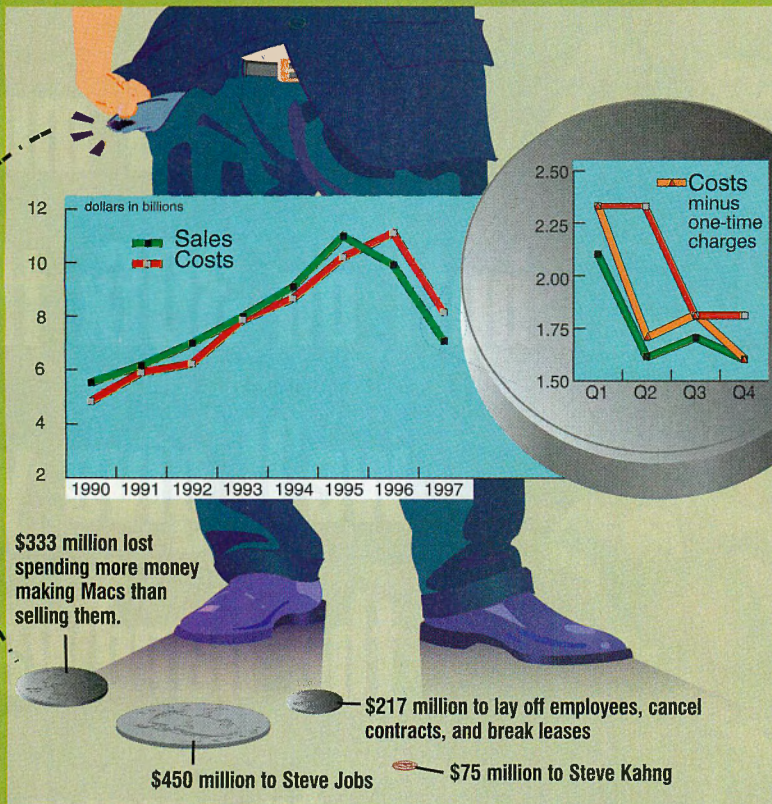


415-468-4684  
[www.macaddict.com](http://www.macaddict.com)

\* Winner may choose either a Pentium 200MMX system (32MB RAM, 2GB hard drive, 3Dfx card, 15" monitor) or a PowerMac 6500/250 system (32MB RAM, 2GB hard drive, 3Dfx card, 15" monitor). No purchase necessary. Void where prohibited. If you are browser impaired then you can enter by sending your name, address, and shoe size on a 3" x 5" index card to Bungie Software, Attn: Myth: The Fallen Lords 3D Contest, PO Box 7877, Chicago, IL 60680-7877. Entries must be postmarked by February 1, 1998. Winners will be selected by random drawing and notified by mail. Employees of Bungie Software, Imagine Publishing, Techworks and Corgius and their immediate families or members of the same household are not eligible to participate. No limit on mail entries, but web entries are limited to one per day. System specifications are subject to change without notice. © 1997 Bungie Software Products Corporation. Myth: The Fallen Lords is a trademark of Bungie Software Products Corporation. All rights reserved. Power3D, TechWorks and the TechWorks logo are registered trademarks of TechWorks, Inc. All rights reserved.



## Apple Loses a Billion Dollars *(not again!)*



### Where, oh where, did it go?

One billion dollars is an awful lot of money to lose, but at least we know where most of it went. Apple paid a \$450 million apology to Steve Jobs for treating him so shabbily 12 years ago. It paid \$217 million to lay off employees, cancel contracts, and break leases. It bought off Power Computing's

Steve Kahng for \$75 million. The other \$333 million it lost because it spent more money in making Macs than it made by selling them. But if you look at Apple's financial status without the one-time charges, the company seems to be slowly but surely making its way back to black. —KT

## Broken Windows

**Y**ou folks couldn't find a clue if we gave you a dollar and told you to buy one at the corner market.

Fewer than one-sixth of the entries in October's window-munging contest contained the correct answer. Then again, maybe we just made the contest too hard. Here's the skinny on the clues. First, we told you we searched Info-Mac to find the list of programs. Maybe you didn't have the URL to

search the Mac shareware archive, so we'll fix that: <http://hyperarchive.loc.mit.edu/HyperArchive.html>. On top of that, we put the name of our mascot, Max, as part of the dummy program. How obvious could we possibly get? Joe Lodato was one of the few clued-in folks who sent the right answer: MaxWindowZoom. Joe's the proud owner of LightningDraw/WEB from Lari Software. —KT

## The MacAddict Index

### GATES WEALTH WATCH

Value in dollars of Microsoft stock held by William H. Gates III as of October 28, 1997: 37,640,823,082

Amount in dollars lost by Gates in the stock market hiccup of October 27, 1997: 1,834,416,870

Number of years that Gates could pay a million-dollar daily fine (accounting for leap years): 103.05\*

### FOCUS ON: THINKING DIFFERENT!

Number of celebrities depicted in Apple's "Think different" television ad: 19

Average number of celebrities depicted per second: 0.317

Percentage of these celebrities who currently are alive: 31.6

Percentage who are female: 21.1

Percentage who are frog puppets: 5.3

Mean year of birth: 1912

Median year of birth: 1923

Degree of lateness of Rhapsody Developer Release, in days: 22\*\*

Degree of lateness of Windows 95, in months: 8

Anticipated degree of lateness of Windows 98, in months: 5 to 7

Approximate attendance at last year's Macworld Expo in Boston: 50,000

Approximate attendance at the International Boston Seafood Show, now Boston's largest event: 20,000

Number of documented Microsoft Word macro viruses, as of September 30, 1997: 1,412

\* Special thanks to reader Tom Cheney for this one!

\*\* It was due last summer, which ended September 22, 1997.

Sources may be found on the MacAddict Web site. —MS



# Jack Nicklaus® 4

**"10 out of 10"**

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*Boat*

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- **Complete Course Designer**

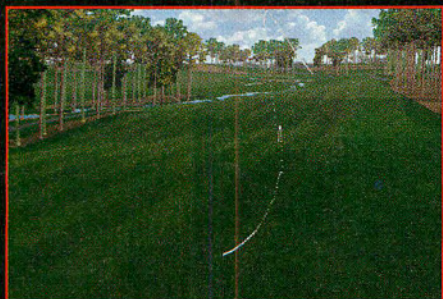
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# cravings

Six quick ponies worth way more than one trick.

cravings



FIND A DEMO of Galapagos and a trial version of Spring Cleaning on The Disc.

## Kritter

IREZ Research

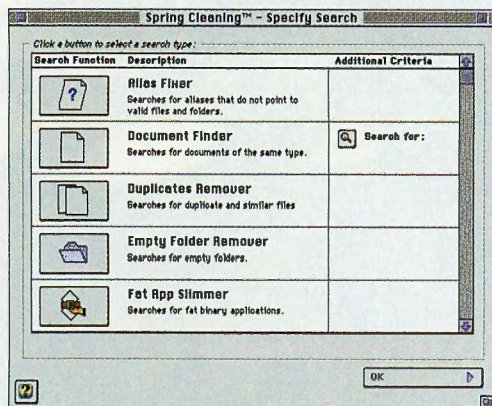
FINALLY—A USE FOR ZOOM VIDEO.

**Y**ou've always been different in an upscale sort of way. That's why instead of a pet rock, you bought a pet stone. That's also why you forked out several grand to buy the PowerBook 3400 when it debuted. You've owned this golden 'Book for nearly a year now, but you haven't used its Zoom video capability (well, frankly, no one else has, either). Now you can with the IREZ Kritter camera. By plugging the Kritter's PC card interface into the lower PC-card slot on your PowerBook 3400 (the 2400 also does quite nicely), you can route video at 320-x-240 resolution and 30 frames per second into your 'Book without bogging down the processor, thanks to the Zoom video support. You then can look at the video stream with the Apple Video Player, or you can manipulate the video using QuickTime Video Conferencing, Kai's Power Goo SE, or Kai's Photo Soap (both Power Goo SE and Photo Soap come with the Kritter). Besides all that, it looks cool perched on top of your PowerBook display. For your own Kritter, contact IREZ Research at 612-939-9299 or <http://www.irez.com>, and be ready to spend \$349.95.



## Spring Cleaning 2.0

Aladdin Systems



**S**ome call it obsessive-compulsive, but you call it the proper way of conducting business as a human being in a filth-encrusted world. Problem is, it has been difficult to apply your organizational expertise to your Mac, what with copies of SimpleText multiplying like crazed bunnies on your hard drive. You've tried Mac cleaning utilities before, but they all seem to have kludgy interfaces—more difficult to use than doing the work by hand. Fret no more. Aladdin Systems has updated Spring Cleaning. The disk cleanser now includes a brand-new user interface to make spiffing up easier than ever. Version 2.0 has several never-before-seen features, including a new duplicate font and file remover, a new search facility, and archiving of seldom-used files via Aladdin's Stuffit. Old favorites, such as Fat App Slimmer, MacUninstaller, and Empty Folder Remover, are still there, too. What are you waiting for? Count out \$100 in crisp, well-ironed one-dollar bills (you'll get a nickel back), and contact Aladdin at 408-761-6200, or go to <http://www.aladdinsys.com>.

A CLEAN MAC IS A HAPPY MAC.

## Avia

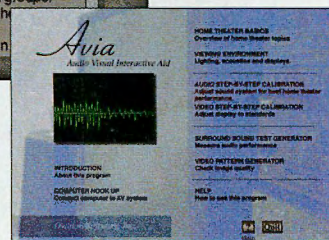
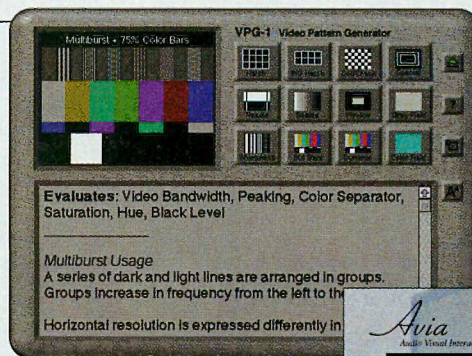
Ovation Software

**P**erfection is not just a goal, it is *the* goal. Anything else is just, well, imperfection. Duh.

That's what makes Ovation's Avia (which stands for Audio Visual Interactive Aid) so interesting. This CD-ROM will help you achieve the perfect home theater setup with minimal fuss. Avia covers everything you might want to know about setting up a home theater system: a Home

FINE-TUNING TOOLS FOR YOUR LIVING ROOM.

Theater Primer shows how to buy equipment to suit your room; a Media Room Set-Up section discusses lighting, acoustics, and equipment placement; and separate video and audio calibration sections help you get your home theater working just so. Best of all, Avia will probably be the cheapest addition to your home theater—at just \$69.99, it's a bargain. Contact Ovation Software at 800-572-3917 or 614-373-6212, or point your Web browser to <http://www.ovationsw.com> to find out more.





# Speed Doubler 8

Connectix

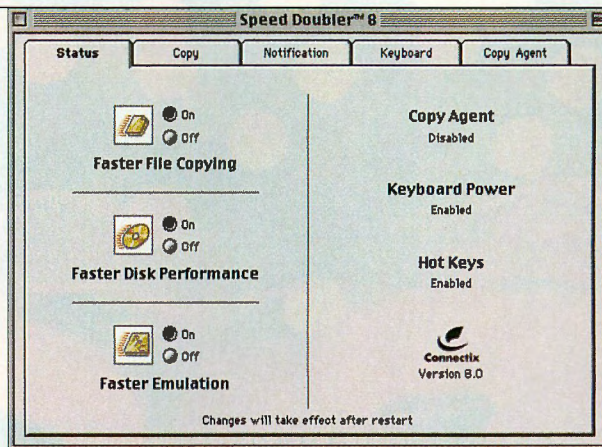
**B**ack in the early '90s, when Apple moved to the PowerPC microprocessor, it wrote an emulator so that people could still run their old 680x0-based applications. And it was good. Then the good folks at Connectix came along, presented another 680x0 emulator, and it was even better. Connectix included this improved emulator as part

**FULFILLS YOUR NEED FOR SPEED.**

of its Speed Doubler utility software—now at version 8—solely to make your

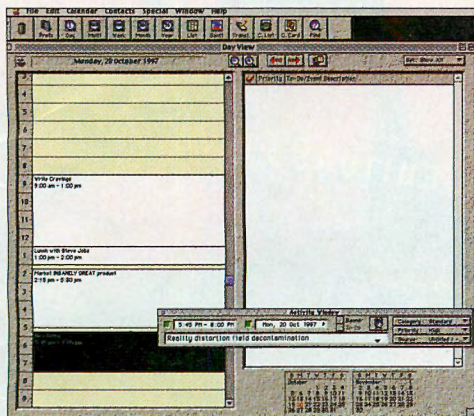
Mac work faster. Besides being a better emulator, Speed Doubler 8 also pumps up your Mac's ability to make copies and empty the trash, and it makes your TCP/IP-based AppleShare network speed up by as much as 200 percent. Speed Doubler 8 also does folder synchronization (for those with PowerBooks), Zip and Jaz media caching, hot keys,

and automatic backups. It even works with Mac OS 8. To find out more, call Connectix at 800-950-5880 or 650-571-5100, or head on over to <http://www.connectix.com> to get more information.



## Consultant

Chronos



**O**h, sure, you've heard what they say about you. You could be a real rising star if you'd only get your act together. But that's proven to be a real problem, with all the addresses, phone numbers, and appointments which you have to keep straight. Chronos aims to make that job easier with Consultant. This personal information manager does all the things you would expect, but it does them with style. It understands plain English to schedule appointments, translating phrases such as "Schedule lunch appointment with Peter to tell him that propane is the wave of the future" into bona fide entries in your calendar. Consultant also reads the calendar out loud while you do other things (think of it as a briefing), it takes advantage of drag and drop, and it even keeps a phone log using Caller ID. All this information management is yours for just \$25. Contact Chronos at 801-957-1774, or go to <http://www.chronosnet.com> to find out more (or even download a demo).

**YOUR INFORMATION AT YOUR FINGERTIPS.**

## Galapagos

Electronic Arts Distribution

Unfortunately, you can't just turn a pup on and off. Mendel—the artificial life form created by Anark, and the hero of the game Galapagos—however, can be switched on and off with just a few mouse clicks. Mendel, equipped with infrared radiation sensors (it sees like a bat), is mighty cute as it wanders around texture-mapped 3D worlds looking for a way out. Along the way, Mendel learns about its environment and adapts to conditions. Your objective is to help it escape Galapagos by manipulating the world

**A CRASH COURSE IN DEVELOPMENTAL EDUCATION.**

around it. Or, if you're particularly sadistic, you can drop walls on Mendel and drive it into a catatonic state. The moral? Don't abuse your pets. To have some fun with Mendel, call Electronic Arts at 800-245-4525 or 415-513-7555, or surf over to <http://www.ea.com/ead>, and be ready to spend \$38.95 on a virtual pet that could take a Tamagotchi in a fair fight.

**"Y**ou can have a puppy if you'll take care of it." Eleven of the most-hated words heard by any child, because a puppy is fun only some of the time.



cravings



"POSTAL IS ONE SICK PUPPY. AND I KINDA LIKE IT."  
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PC Multimedia & Entertainment Magazine

"ONE OF THE MOST POWERFUL GAME EDITORS WE'VE  
EVER SEEN IN AN ACTION GAME"


Computer Gaming World

"POSTAL IS ONE OF THE MOST OUTRAGEOUSLY  
FUNNY TITLES I'VE EVER SEEN! IN ADDITION  
TO THE GREAT GAME PLAY, THE TECHNICAL AND  
ARTISTIC FEATURES OF THIS GAME ARE  
EXCEPTIONAL."


AnyGame.com

"SURE, SENSELESS VIOLENCE IS FUN. BUT IT'S EVEN  
MORE FUN WHEN IT'S DIRECTED AT MARCHING BANDS"

Computer & Net Player Magazine



- Brutal shooter/strategy  
combo challenges you to  
keep one eye on your  
target and the other  
looking over your shoulder  
at all times.



- So freakin' real, your  
victims will actually beg  
for mercy and scream for  
their lives.



- Real-time 3D characters  
rage against beautifully  
hand-painted 2D killing fields.



"ANTISOCIAL, PSYCHOTIC, AND COMPLETELY IRRESISTIBLE."  
PC Games

"HOW DO YOU SPELL RELIEF? P-O-S-T-A-L."  
KickAss.com

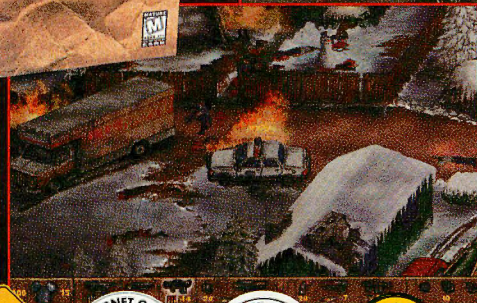
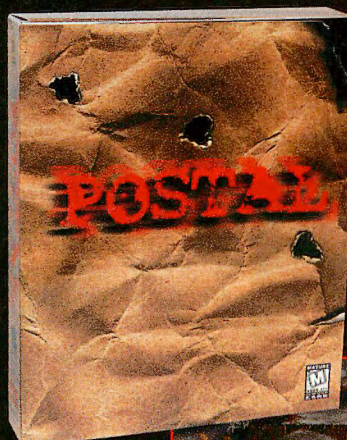
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future

# APPLE'S FUTURE

BY **DAVID REYNOLDS**  
ILLUSTRATIONS BY **FEDERICO JORDAN**

**M**ay you live in interesting times. The popular Chinese curse has been put on Apple and those who love the Macintosh, and although the company's entire history has been interesting, the last couple of years have been particularly so: multibillion-dollar losses; three CEOs; products that caught on fire; Copland's delay and then mortal wound; the return of Steve Jobs; the start of Macintosh cloning and the death of the most visible cloner. When a week goes by with no earth-shattering announcements out of Cupertino, it is a slow news week. It's enough to test the faith of even the most devout Mac maven.

Confused about where Apple is heading? Don't be. The Mac OS is not going away. Apple has not sided with Microsoft over Sun Microsystems for control of Java. Macintosh development will not stop now that the two major Mac clone manufacturers have closed up shop. We'll show you, item by item, what has changed, where Apple is heading, and why its future is looking brighter than it has in years.



# 10 REASONS WHY APPLE WILL BE OK...

- \* Steve Jobs
- \* Mac OS 8 sales and Rhapsody's release
- \* Great new hardware about to arrive
- \* Focus on the markets and efforts that matter
- \* Shifting mind share
- \* Financial turnaround
- \* Deal with Microsoft
- \* New, strong board of directors
- \* Strong marketing campaign
- \* Major Mac developers invited in to see Apple's plans

future

## ...AND THE 10 BIGGEST OBSTACLES TO APPLE'S RECOVERY

- \* Ensuring product availability at release
- \* Weak home and corporate markets
- \* Rapidly eroding market share in education
- \* Java wars between Sun and Microsoft
- \* Meeting all operating system release deadlines
- \* Maintaining high quality of products
- \* Further erosion of confidence with continued losses
- \* Reducing inventory from five months' supply to a matter of weeks'
- \* A bleeding and almost mortally wounded retail distribution channel
- \* Windows NT 5, which is a serious contender



# WHO'S THE BOSS?

The day Steve Jobs came back to Apple as an advisor in early 1997 was the day on which everything changed. It also was a day of triumph for Jobs. After all, in a boardroom power struggle back in 1985, Jobs was stripped of his power; soon after, he resigned from Apple. Not long after his resignation, Jobs started NeXT Computer, which later turned into NeXT Software. Although he didn't yet know it, this planted the seeds for his eventual return to the helm of Apple.

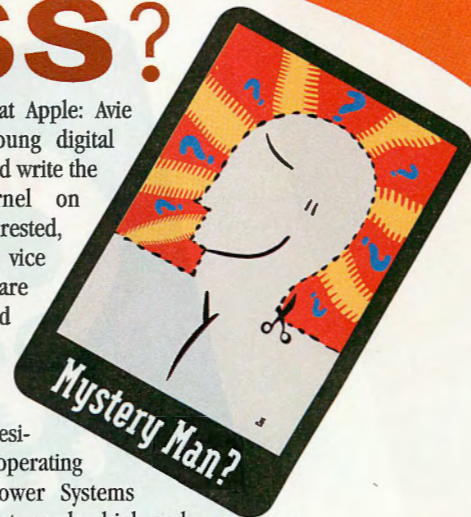
In the latter part of 1996, when it became clear to Ellen Hancock (then chief technology officer at Apple under then-CEO Gil Amelio) that the Copland project was stalled beyond salvaging, Apple started shopping around for new technology on which to base its new operating system. Although the company considered purchasing Be (another

software company started by a former Apple executive, Jean-Louis Gassée) to get the Be OS, Apple instead purchased NeXT, for \$400 million. In the deal, Apple got the company, the OpenStep operating system (on which Rhapsody would be based), WebObjects, and Steve Jobs.

Jobs returned to Apple as an advisor. Ostensibly, he and former Apple co-founder Steve Wozniak would work at Apple a few hours a week, offering advice on the best strategies to make Apple healthy again. This arrangement lasted for a few months while ex-NeXT employees came into Apple and started work on the newly announced Rhapsody project.

It soon became apparent that all was not as it seemed at Apple—at least regarding who was in charge. The first tangible signs appeared in the spring of 1997, when two ex-NeXTers were given

prime positions at Apple: Avie Tevanian, the young digital wizard who helped write the Mach microkernel on which OpenStep rested, was made senior vice president of software engineering; and Jon Rubinstein, who worked at the time as executive vice president and chief operating officer at FirePower Systems (a company that made high-end PowerPC-based computers) and was formerly vice president of hardware engineering at NeXT, was made senior vice president of hardware engineering. Rubinstein was chief designer of the NeXT cube, which, although not a hot seller, was an elegant computer that





used bleeding-edge technology.

With these two top positions filled, Hancock—who had been hand-picked by Amelio and whom Jobs was widely known to dislike—was given responsibility for Apple's Advanced Technology Group (ATG) and part of the Quality Assurance (QA) group, and oversight of the chief scientists and Apple fellows. This reassignment was a blow to Hancock—sort of the Apple equivalent of being exiled to Siberia. (Interestingly enough, after Hancock left, so did most of what she oversaw. ATG and QA both were absorbed into other Apple groups, Chief Scientist Larry Tesler is no longer at Apple, and Apple Fellow Guy Kawasaki is currently on sabbatical writing a book.)

With his first covert power struggle won, Jobs' influence in Apple continued to grow. In the meantime, Wozniak seemed to pull back from Apple as quickly as Jobs moved in. (Wozniak still maintains the title Apple Fellow.) In July, amid reports of another big loss, Amelio resigned as CEO of Apple. His last words while leaving were, "I lovingly leave Apple in your care. Good luck, I'll be cheering from the sidelines." Despite his resignation and cheery well-wishing, however, it was clear that Amelio's departure was not entirely voluntary. Humpty Dumpty was

**"STEVE'S VERY, VERY SMART. THE WAY HE'S SMART IS INTERESTING. HE SURROUNDS HIMSELF WITH THE VERY BEST SMART PEOPLE, TAKES THEIR BEST IDEAS, COMBINES THEM, AND THEN RUNS THEM BACK BY THEM TO SEE IF HE CAN SELL THEM."**

**"IS STEVE TRYING TO KILL APPLE? NO WAY. HE IS DEFINITELY TRYING TO SAVE IT, BUT IT'S LIKE A DOCTOR TRYING TO SAVE A PATIENT FROM GANGRENE BY AMPUTATING BOTH LEGS. IT'S A PAINFUL SIGHT AND A BAD TRADE-OFF. ...I THINK STEVE IS DOING WHAT'S NECESSARY."**

—CHRIS ESPINOSA, APPLE EMPLOYEE NO. 8, IN A SEPT. 23, 1997, APPLE ONLINE CHAT

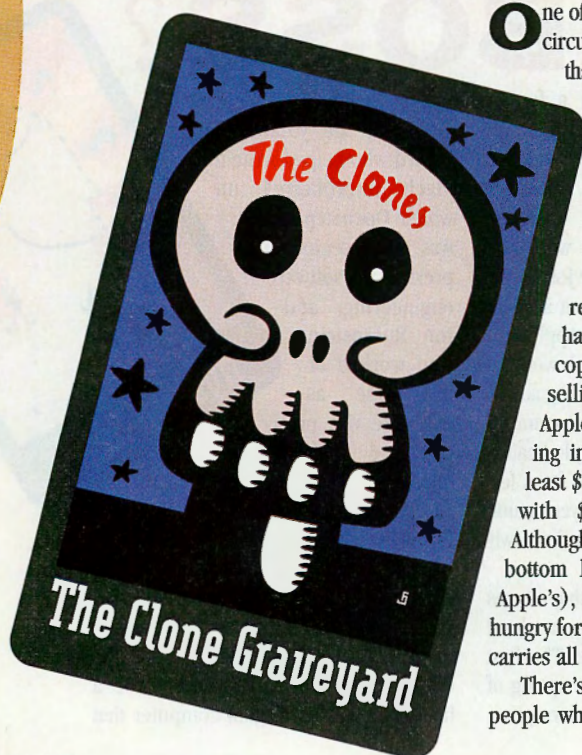
pushed. Apple's chief financial officer, Fred Anderson, took over day-to-day operations at Apple while Jobs became the company's spokesperson. Despite his fingerprints on the shakeup at Apple, Jobs had yet to assume any power—on paper.

It's difficult to pinpoint what happened next, but at some time between the World Wide Developers Conference in May and Macworld Expo in August 1997, Jobs stopped being a part-time advisor and made a real commitment to bringing Apple back from the brink. Odds are, this happened after June, when Jobs sold \$22 million of Apple stock (at around \$15

a share). Jobs told *Time* magazine (Aug. 18, 1997), "I pretty much had given up hope that the Apple board was going to do anything. I didn't think the stock was going up." As of mid-October, Apple stock was trading at around \$22 a share.

During August's Macworld Expo, it became clear that because Jobs thought the old board of directors wasn't going to do anything, and he had the support of many ex-NeXTers who were now in key positions at Apple, it was time for a new board—and a new direction. Jobs, at his keynote, announced that most of Apple's old board of directors had resigned, leaving only two members who would stay.

# THE FATE OF THE MAC OS



One of the most persistent rumors to circulate since Jobs' rise at Apple is that Apple will abandon the Mac OS in favor of Rhapsody. Although it's true that Rhapsody is based on NeXT technology, which Jobs helped create, the Mac OS is far from dead. Here's why.

Mac OS 8 is a hit. Since its release in July 1997, Mac OS 8 has sold more than 2 million copies. That's perhaps the best-selling piece of software that Apple has ever released. It's bringing in a ton of money—figure at least \$50 per unit, and you come up with \$100 million in revenue. Although this money goes to Claris' bottom line (and only indirectly to Apple's), it shows that Mac users are hungry for the Mac OS, whether or not it carries all the buzzwords.

There's a tremendous number of people who love and use the Mac OS,

and Apple knows it. Jobs said during his Macworld Expo keynote that "the Mac OS is an incredible core asset to Apple, and we've been walking all over it. Most people think that we're about to abandon the Mac OS. We just released Mac OS 8, which was code-named Tempo. So we just released Tempo. Our next release next year is code-named Allegro. Then most people think our next release will be Requiem. It's crazy. It's absolutely crazy."

Apple promises that Mac OS development will continue as long as there is demand. Judging from the response that Mac OS 8 has received, that could be a very long time indeed.

The Mac OS continues to be developed. Mac OS 8 is only the first major revision to make it out the door. Apple has promised at least two more (Allegro in 1998 and Sonata in 1999) over the next two years. Even before Allegro arrives, Apple is finishing up work on an update to Mac OS 8. Code-named Bride



One of those who would leave was longtime board member Mike Markkula, long seen as the preeminent power on the board of directors. Jobs announced four new board members, including Jobs' buddy Larry Ellison and Jobs himself. He also announced the now-famous deal with Microsoft.

Not everything Jobs announced that day was popular with the Mac faithful. When Ellison spoke during a video presentation, he was booed. And when Bill Gates appeared larger than life on the on-stage video screen, he, too, was booed and jeered. Jobs gently admonished the crowd, "We have to let go of this notion that for Apple to win, Microsoft has to lose. For Apple to win, Apple has to do a really good job."

After this, Jobs had a hand in forever altering Mac cloning. He also announced a new advertising campaign, a new focus both on education and on publishing and design (two of Apple's strongest markets), and a bevy of new products that he promised would be insanely great. Now the interim CEO at Apple, Jobs is considering a more permanent stint as the head honcho.

Why the history lesson? Because everything that Apple will become after 1997 has its roots in this story of Jobs' return to Apple. Which leaves the question: What *will* Apple become?

of Buster, Mac OS 8.1 isn't just a bug fix. This release has a new file system (HFS+), the latest versions of QuickTime and Open Transport (and other Apple technologies), and it also will have the requisite bug fixes. If Apple intended to abandon the Mac OS, rest assured that development efforts would stop—much as they did when Copland was still alive. Only five engineers were working on the Mac OS in mid-1995. Contrast that with 100 engineers working on it in mid-1997.

Apple has learned from Microsoft. By watching Microsoft struggle to get Windows users to upgrade, Apple has learned what not to do. Windows NT, the equivalent to Rhapsody, has been selling for five years, and it just now has started to gain momentum. Apple still sells more units of the Mac OS than Microsoft does of Windows NT. Microsoft also has had a difficult time getting its users to upgrade to Windows 95. Even two years after Windows 95's release, millions of PC users are still using Windows 3.1. If Apple ended development of the Mac OS and expected all Mac users to adopt Rhapsody, they'd hit a similar wall. Jobs knows it and said as much during his keynote speech at the October 1997 Seybold San Francisco trade show, where he said that Apple isn't about to attempt a "brain transplant" by substituting Rhapsody for the Mac OS.

# MEET THE BOARD

It's a great group, this new board of directors. The group of six has experience with competition, corporate turnarounds, technology, overseas markets, motivation, and vision.

## EDGAR S. WOOLARD JR., CHAIRMAN AND FORMER CEO OF E. I. DU PONT DE NEMOURS

**SOME INSIGHT:** Woolard, who was part of the search effort for Apple's new CEO, was reportedly the one to break the news of Amelio's imminent departure to Amelio. In a meeting with the U.S. State Department's Overseas Security Advisory Council, Woolard touted the need for competitive intelligence—something like using the CIA for business information—in today's companies, saying "The current state of affairs is a business war."

**TURN-ONS:** Paint, plastics.

**TURN-OFFS:** Fatal chemical spills.

## LARRY ELLISON, CHAIRMAN AND CEO OF ORACLE (NEW BOARD MEMBER)

**SOME INSIGHT:** A Chicago native, Ellison co-founded Oracle in 1977. Through Oracle, Ellison has considered the takeover of several companies, including Lotus, Gupta Technologies, and Apple. Given Oracle's strength in networks, it's not surprising that Ellison is a tremendous booster of the stripped-down network computer, and he has expressed an interest in Apple producing such a device. His personal fortune is estimated at around \$6 billion, and Oracle does \$4.2 billion a year in sales.

**TURN-ONS:** Floating hostile takeover trial balloons.

**TURN-OFFS:** Giving demos of network computers.

## GARETH C.C. CHANG, PRESIDENT OF HUGHES INTERNATIONAL

**SOME INSIGHT:** Before joining Hughes International, Chang spent 20 years with McDonnell Douglas (including a stint as corporate vice president for McDonnell Douglas Pacific and Asia). He has worked for Xerox and Rockwell. His educational background is in math, physics, and business. A native of Chengdu, China, Chang has some expertise in Asian/Pacific Rim markets.

**TURN-ONS:** Big jet engines. Really big jet engines. Oh, and the Macintosh (he owns lots of them).

**TURN-OFFS:** Jokes about making planes out of the Black Box material.

## JERRY YORK, FORMER CFO OF IBM AND CHRYSLER (NEW BOARD MEMBER)

**SOME INSIGHT:** York is well known for his turnaround efforts at IBM, where he cut \$7.1 billion in expenses. During his tenure, IBM's stock nearly doubled. He started his career at Chrysler, where he rose through the ranks to become CFO in about 14 years, and left to go to Big Blue when passed over for Chrysler's CEO position. York criticized Chrysler for not paying enough attention to quality.

**TURN-ONS:** Saving struggling companies.

**TURN-OFFS:** The K car.

## BILL CAMPBELL, PRESIDENT AND CEO OF INTUIT (NEW BOARD MEMBER)

**SOME INSIGHT:** The former head of Claris, Campbell left Claris during John Sculley's reign. Campbell was a former football coach at Columbia University. The *Forbes* ASAP Web site describes him as "a leader who turns strong players into stars...can rally troops...kept up the morale during Microsoft merger debacle and pulled company back up."

**TURN-ONS:** *Monday Night Football*.

**TURN-OFFS:** Changes to the tax code.

## STEVE JOBS, CHAIRMAN AND CEO OF PIXAR ANIMATION STUDIOS (NEW BOARD MEMBER)

**SOME INSIGHT:** Jobs is a passionate man who is able to take a seemingly disparate collection of ideas and make a coherent whole out of it. He has drive and energy, and he is charismatic—long rumored to be able to bend reality through sheer force of will.

**TURN-ONS:** Long, thoughtful walks on the beach to decide the fate of a company. Being known as a rebel.

**TURN-OFFS:** Three-piece suits. Big offices.



# DEAL WITH THE DEVIL

future



**D**uring the August Macworld Expo keynote, Jobs flexed his new muscle by announcing a deal with Microsoft. Jobs outlined five key parts of the deal:

- \* Both Apple and Microsoft embraced a patent-settlement cross-license, whereby both parties agreed to cross-license all existing patents and any patents

- to be filed during the next five years;
- \* Microsoft committed to releasing Microsoft Office for the Mac over the next five years, with as many major versions for the Mac as for Windows;
- \* Apple will make Microsoft Internet Explorer its default browser on all shipping Macs (which should happen by the end of 1997);
- \* Apple and Microsoft will collaborate to make sure that both companies' Java virtual machines will be compatible;
- \* Microsoft will invest \$150 million in

nonvoting shares of Apple stock, which cannot be sold for three years.

Wall Street liked the deal. After these announcements, Apple's stock price rose from around \$15 a share to peak at more than \$30 a share before profit taking reduced its eventual share price to around \$22.

This was only the beginning, though. Apple subsequently announced that ColorSync, its much-valued color-matching software, would find its way into Internet Explorer in both Mac and

## SHOW OUT THE CLONES

### APPLE'S ROADMAP—THE FIVE MOST VISIBLE LANDMARKS

- \* The Mac OS for the foreseeable future
- \* "Think (and market) different"—New ads, new attitude, and a consistent, focused message
- \* Concentration on Apple's strong markets
- \* New hardware: Macs using latest PowerPC chips and new, simplified design, and new Newton-based products
- \* Rhapsody released as a server and "power client" operating system

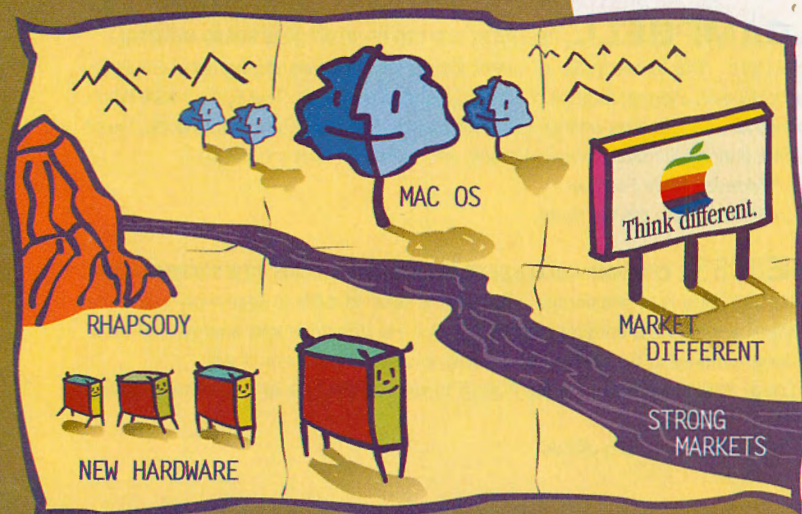


**T**his is one of the stickiest changes to happen at the new Apple. Since 1993, Apple has licensed the Mac OS to several companies—most notably, Motorola and Power Computing—for a license fee of about \$50 per unit sold plus other licensing fees for Apple-approved hardware designs. Something was wrong with this arrangement, which ended in the summer of 1997 when Apple purchased Power Computing's Mac OS license and a few other assets for \$100 million, and Motorola quit the Mac OS clone business entirely.

Apple said that cloning was actually costing the company several hundred dollars—in marketing and research and development—per clone sold. Jobs said during his Seybold conference keynote that he went to the clone makers and said, "Guys, we're going to go broke doing this. And if we go down the shitter, the whole ecosystem goes down the shitter, and you won't be here, either." He said that he went back to them several times with offers but that they wouldn't bite. So, Apple bought Power Computing's license.

The clone makers tell a slightly different story. People from both Motorola and Power Computing have said that, back in mid-1997, Apple had reached a licensing agreement *in principle* with both companies and that all that remained was for contracts to be drawn up and signed. This changed abruptly when Amelio left Apple and the agreements in principle no longer stood. Without a contract, there was no agreement and, thus, no licensing.

Both parties agree that there were at least two major sticking points: portable Mac clones and CHRP-based Mac clones. Some speculate that because designing portable systems is more demanding than designing desktop systems, Apple had to impose more stringent certification to make sure that portables worked—and to avoid another PowerBook 5300 fiasco. Others say that because Apple's PowerBook line provides the company with solid revenue, the company was reluctant to license portables for





Windows versions. This means that users who want consistent color for Web publishing will be relying on Apple software to get the job done.

Although the thought of Apple and Microsoft is difficult for some Apple devotees to accept, it does something for Apple that Apple couldn't do for itself: It puts Apple technology into Microsoft's markets; and the whole world sees that because Microsoft believes Apple will survive the next five years (and has put up cash to back up that belief), perhaps Apple will survive. You can't buy mind share like that—unless you're Microsoft.

The deal also does something for Microsoft. It gives the company some protection from potential antitrust actions. Microsoft faces probes into its business practices by attorneys general from several states, and the U.S. Justice department is doing some probing of its own—plus, there's the Sun Microsystems lawsuit. Microsoft can point to its investment in Apple as an example of playing nice with others in the high-tech field. The patent cross-license with Apple also puts an end to potentially costly legal battles with Apple over patent infringement.

**"WE'VE SEEN AN INCREDIBLE CHANGE SINCE STEVE HAS COME BACK, IN THE FOCUS AND DECISION-MAKING ABILITY OF THE COMPANY. WE DON'T WAIT FOR DECISIONS FOREVER. THEY'RE MADE. [ALTHOUGH] WE MAY NOT ALWAYS AGREE WITH THEM.**

**—BUD COLLIGEN, CHAIRMAN, MACROMEDIA**

fear of cutting into its bottom line. Whatever the reason, Mac-compatible laptops never made it to market.

A similar thing happened to Common Hardware Reference Platform (CHRP) Macs. CHRP-based Macs were not tied to proprietary Apple hardware (including Apple ROMs), so cloners that wanted to use CHRP machines no longer had to license the hardware designs from Apple. Instead, they could push hardware designs in new directions. Motorola had a line of such CHRP-based Macs ready to go, and they were innovative. These Macs, the StarMax 6000 line, were shown at Macworld Expo, but they never made it to market because Motorola decided to get out of the Mac OS game rather than continue to fight over licensing. (See "G3 Gives You Wings," p40, to see how these CHRP-based Mac compatibles stack up against Apple's newest offerings.)

UMAX Computer, the maker of the SuperMac line, has reached a licensing agreement with Apple that will last through July 1998 and will cover both Mac OS 8 and non-CHRP-based hardware designs, so there is still some choice. Why were Apple and UMAX able to reach an agreement? Officials won't say, but the possibilities include UMAX as a test bed for Apple hardware designs, a commitment that will prevent the SuperMac product lines from competing directly with Apple product lines (by

keeping to the low end of the market and avoiding CHRP designs), or that UMAX is exceedingly important in the Pacific Rim market. Whatever the reasons, UMAX appears willing to play ball with Apple in ways that Power Computing and Motorola were not. A couple of Mac OS sub-licensees are still operating, including PowerTools and MacTell. It is unclear how long these companies will be able to continue to offer their Mac clones without a direct licensing agreement with Apple, something that is unlikely to happen. Apple will honor all licensing agreements that were already signed, but those are of little use because they cover only Mac OS 7.6 and earlier hardware designs.

Will we see a return to Mac cloning as we knew it? Probably not. Apple isn't likely to jump back into the licensing game, and it's unlikely that any computer maker would be willing to trust Apple to continue to license the Mac OS after this year's noisy disagreement. Will Mac cloning of any kind continue? That depends on what UMAX and Apple work out. Mac clone companies pushed Apple to innovate more quickly than it had in years, which resulted in the fastest personal computers on the planet. The removal of Power Computing and Motorola from the playing field reduces the pressure on Apple to innovate, but that pressure may continue from the computer world at large, where Apple has to be clearly superior to survive.

# THE APPLE FAQ

**Q:** Will Apple abandon the Mac OS?

**A:** Not a chance, at least for several more years. Mac OS 8 is selling too well, and Apple knows that if it replaces the Mac OS with Rhapsody in one fell swoop, it will lose a lot of customers. Only time will tell when Apple will complete the transition to Rhapsody, but it shouldn't happen for a long time.

**Q:** Will Apple abandon the PowerPC chip?

**A:** No way. PowerPC chips are fast and cheap. The PowerPC architecture is really hitting its stride, and with Motorola and IBM both obtaining copper manufacturing techniques, these chips should get faster yet—possibly reaching speeds of more than 1 gigahertz. Apple is committed to using the PowerPC as its core target for a long time to come. That doesn't mean that Intel chips aren't in the future, however. Rhapsody is processor-agnostic—it will run on both PowerPC- and Intel-based computers.

**Q:** What is Steve Jobs' wardrobe like?

**A:** He likes mock turtlenecks, shorts, and Birkenstock sandals.

**Q:** Will Apple find a way to beat Microsoft?

**A:** Nope. And here's the thing—Apple is going to stop trying to beat Microsoft. Instead, Apple is going to start making Apple great. As Steve Jobs said during his Macworld keynote, "This era of setting this up as a competition between Apple and Microsoft is over, as far as I'm concerned." Instead of going head-to-head, Apple will improve in areas in which it's already good instead of fighting against Microsoft at every corner.

**Q:** When will Apple start advertising?

**A:** Early in October 1997. Or perhaps you missed *Toy Story's* broadcast premiere, in which Apple kicked off its new "Think different" campaign. Expect to see more broadcast and print ads, some billboards, and maybe a custom-painted bus or two.

**Q:** Will Apple stop innovating now that the clones are gone?

**A:** It had better not. Apple has too much to lose to stagnate in terms of hardware design. Despite what experts predicted, Intel has been able to push the 80x86 architecture through the roof in terms of performance, and the rest of the PC has followed suit with fast bus speeds, great memory, and onboard graphics acceleration. Apple can't afford to fall behind.

**Q:** Will Apple get into network computers?

**A:** Yes, if only as an experiment to keep Larry Ellison happy. All the pieces of a network computer are in place, and if there's one coming from Apple, expect to hear about it by January's Macworld Expo.

**Q:** Can Apple survive?

**A:** Yes. With the focus that Jobs has brought to the company, Apple's fortunes are turning around. Best-case scenario: Jobs and company hit on exactly what the public wants, and they execute plans to produce it flawlessly. Apple becomes the Next Big Thing yet again. Worst-case scenario: Someone (Oracle,



Sun, insert company name here) buys Apple, disbands it, and continues to develop and market the Mac OS.

**Q:** When will I be able to get Rhapsody?

**A:** In 1998, when the Premiere release is available. The Rhapsody Developer Release is available only to registered Apple developers who have signed some pretty serious paperwork.

**Q:** Will Apple ever relicense the Mac OS?

**A:** Probably not. Apple has made it clear that it doesn't consider licensing to be a Good Thing, and it's doubtful that any major player in the computer industry would trust Apple to follow through on such a deal. Existing licensees might make new deals, but don't expect to ever again see the same level of licensing that was seen during the summer of 1997.

**Q:** What about CHRP? Will we ever see CHRP-based Macs?

**A:** We'll see some CHRP technology make it to the Macintosh, but as for a full-blown CHRP machine, you're probably not going to see one—unless you work in Motorola's defunct Mac OS division, where there are a few StarMax 6000s sitting around. Still, things such as a faster system bus will show up in new Macs.

**Q:** Will Steve Jobs remain the CEO of Apple?

**A:** Although Jobs denies wanting the job, he has hinted lately that he may remove the interim from his title. We'll know in the next 90 days whether or not he's staying. If not, expect to see a new CEO by early 1998, and expect it to be someone who can work well with Jobs.

**Q:** Why is the Mac so cool?

**A:** Because it's a rebel machine. It's kind of like choosing a Harley-Davidson motorcycle over a Yamaha. Both companies make great bikes, but owning a Harley has a certain mystique that you'll never get with a Yamaha.

**Q:** Will Microsoft take over Apple?

**A:** Not unless it wants a very uncomfortable probe by the Federal Trade Commission and numerous other law-enforcement agencies. The Microsoft-Apple relationship is much more cozy these days.

**Q:** Will IBM and Motorola abandon Apple and the PowerPC chip?

**A:** Nope. The two companies have a good customer in Apple, and they can use PowerPC chips in other things, such as cellular phones, network computers, and many other embedded systems. Besides, the two companies both have the copper fabrication process, which will let them make some really fast chips.

**Q:** Will we ever be able to buy the eMate without having a kid in school?

**A:** Soon. Jobs took an eMate home and liked it so much that he bought the company. Actually, Apple reabsorbed the Newton before the umbilical was cut, and Jobs as much as promised that an eMate-like device would soon be generally available.

# THE NEW MAC

Perhaps the pressure from cloners is gone, but Apple does have some great new products that are about to hit the market.

Based on a new logic board design (called Gossamer), the new Power Macintosh G3 models will be fast and cheap, with Pentium II-class performance for around \$2,000.

(See "G3 Gives You Wings,

p40, for the full scoop on these new models.) These faster Macs use CHRP technology (such as a faster system bus) to achieve performance, but they are not CHRP Macs. Although these new Macs are cool, they are, after all, Power Macintoshes, and they'll be pretty much what you might expect from a new Mac. What's really interesting, though, is what Apple has planned for its hardware over the next few years.

**MORE SPEED:** The Gossamer-based Macs will start out fast, but



technology in the general market soon. This will probably include an eMate device aimed at the general public.

**NETWORK MACS:** Although this is still sheer speculation, it comes from several sources and is a compelling (and interesting) story. Rumors have been swirling that Apple will produce a network computer that will go on sale in early 1998. This network computer would run the Mac OS, and the server to which it would be connected would run Rhapsody. Although unconfirmed at this point, there are several items that make this scenario likely:

\* Gossamer-based Macs will be cheap—The Gossamer design is a high-performance, low-cost design that makes Macs quite affordable, even down to the \$700 range, if certain concessions consistent with a network computer are made (such as limiting expansion

**"IT'S REALLY GREAT TO HAVE STEVE BACK. WHAT I HAVE SEEN...IS AN ENORMOUS AMOUNT OF FOCUS."**

—JOHN WARNOCK, CEO OF ADOBE SYSTEMS, AT SEYBOLD

expect them to get faster fairly quickly. The system bus is currently rated at 66MHz, but Apple expects to push the bus speed to 83MHz. The processors that power the Gossamer board should get faster, too. Expect to see 275MHz PowerPC 750s in these Macs in the near future. Also, Apple is working on a replacement logic-board design for its 9600 line, which promises to be mighty quick—and expandable.

**NEWTON COME HOME:** When Steve Jobs took an eMate 300 home, he discovered that this was indeed a very cool product and wondered why it was being sold in the education channel instead of to the general public. Thus, the recently spun-off Newton division was unspun and came back home to Apple.

According to Jobs in his Seybold keynote, expect to see more Newton

options, limiting the hard drive, and removing the floppy drive). Despite rumors to the contrary, Apple is not investing a gazillion dollars in research on the network computer. The Gossamer board already makes a fine logic board for such a machine, so Apple would simply need to leave out certain components (say, expansion slots or ports) and use a small case (say, an old LC pizza box).

\* Rhapsody is a network operating system—Rhapsody, based on Unix, has deep roots in network computing. The Rhapsody OS hosted on a sufficiently beefy server connected with really fast Ethernet (say, 100BaseT) would do quite nicely as the core of a network computing system.

\* Apple is talking about Rhapsody's networking—a lot. During briefings on Rhapsody, engineers and public relations people talked often about Rhapsody's



# THE TALE OF JOBS

ability to do distributed computing and to support multiple users. When logging onto a Rhapsody system, it's difficult to tell whether you're using a hard drive or a network—your workspace looks the same either way, whether or not you're using your own physical machine.

\* Larry Ellison is on Apple's board—Need we say more? Ellison is a champion of network computing, and it makes sense that he would support Apple moving in that direction.

If Apple does enter the network computer arena, expect those network computers to be mighty nifty. These days, most network computers use a system that's so pared down that it's unusable if the network isn't working well. Many of them also use Java to do their work, which is a promising technology but certainly nowhere near as easy to use or as mature as the Mac OS. Apple network computers that use the Mac OS are rumored to be able to work even if the network is down, and, since they would use the Mac OS, they would run a reliable and friendly OS.



**"LIKE IT OR NOT, APPLE IS THE MAC... WITHOUT THE MOTHERSHIP [EVOLVING THE MACINTOSH], IT WON'T HAPPEN."**

**—STEVE JOBS, SEYBOLD KEYNOTE**

Steve Jobs has had a real education in what works—and what doesn't. While some may say that Jobs failed at Apple during the original Mac launch and failed again with NeXT, this isn't entirely true. Jobs, who never held the CEO position at Apple before his ouster, was pushed from Apple by then-CEO John Sculley, who saw Jobs as dangerous and out of control. When Jobs left and founded NeXT, he created a company that used cutting-edge technology in its elegant hardware and object-oriented software. It's true that, although it never caught on as the next Apple, NeXT did succeed in creating a mature operating system and a usable cross-platform development environment. All during his tenure at NeXT, Jobs shuttled back and forth to Japan and the Pacific Rim, looking at the latest and greatest to emerge in those markets, studying new technology and devices.

Besides NeXT, Jobs is also involved in another successful company, Pixar Animation Studios. Pixar recently signed an unprecedented 10-year, five-movie deal with Disney. It seems Jobs has learned something about running a successful business since he left Apple 12 years ago.

It's difficult to separate Apple from Jobs since his return to the company. To understand Jobs is to understand where Apple is heading. Here's a glimpse inside the man behind the new Apple:

Jobs is a rebel: Before the Apple computer, Jobs and Wozniak sold the "blue box," an illegal device that let people make free long-distance calls. The original Apple I was priced at \$666, a number that would make any modern

marketing person recoil with horror at how such a price would be received. The introductory ad for the Mac was an act of rebellion, as was the Mac itself. The recent "Think different" campaign also appeals to the rebels out there. Jobs doesn't do the corporate thing, either. He frequently comes to work in a mock turtleneck, shorts, and either running shoes or Birkenstock sandals, and he signs letters without capitalizing his name.

Jobs is passionate: Just listen to his speeches. When Jobs cares about something, he makes it known how much he

cares about it. He invests time to make the things he believes in great. Jobs also is known for being equally passionate about things that he believes are wrong. That passion leads him to throw himself wholeheartedly into projects he believes in. Witness Apple. In June 1997, he sold millions of dollars worth of Apple stock.

Then, he had a change of heart, becoming interim CEO of Apple, putting himself on the board of directors and making sweeping changes. Not the actions of a man who's disinterested in his work.

Jobs pushes people to work hard: As Chris Espinosa, Apple Employee No. 8, said during an Apple-sponsored online chat in September 1997, "It's hard working for [Jobs] because he

demands you be nothing but the best and smartest you can be, and if you can't do that, you're pretty much dog meat." When asked during Seybold San Francisco about changes at Apple, Jobs said, "The parking lot is completely changed from three, four months ago. There are actually cars there after 6 p.m. There are cars there on the weekend." Jobs' drive has infected many Apple employees (through desire to please or fear of being fired), and they are working harder than they have in a long time.

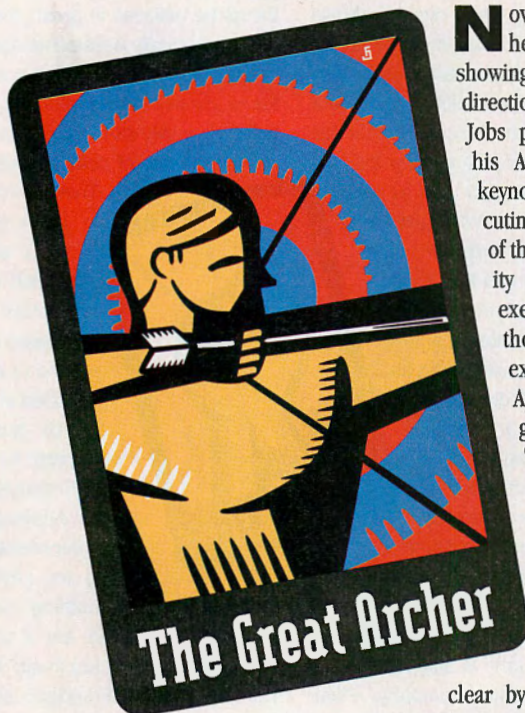
Jobs likes to work with people he knows: Apple's board of directors includes several executives with whom Jobs has a history, such as Bill Campbell and Larry Ellison. Apple's new marketing company, TBWA/Chiat/Day, was one with which he worked during the Mac's introduction. More recently, Apple hired Neihaus Ryan Public Relations Group, the same company that handled NeXT's public relations. Jobs has several former NeXT employees, including Avie Tevanian and Jon Rubinstein, in positions of power at Apple. The company has retained NeXT's former general counsel and secretary of the board of directors, Nancy Heinen, as its general legal counsel. Finally, Allen Olivio, a former Apple ad executive, rejoined Apple to oversee advertising. Most of the high-level people put in place during Amelio's reign have resigned.

**Steved** (v., Steve, Steving)—To be cut, fired, or otherwise terminated. A vernacular term used among Apple employees and Apple watchers to note when a project has been canceled by Steve Jobs, through either direct action or directive. "I heard a rumor that Macintosh cloning has been Steved." Usually used in the past tense as an explanation for an action that has already happened.





# LIKE A LASER BEAM



**N**ow that Jobs is at Apple's helm, the company is showing some signs of having a direction and moving toward it. Jobs pointed this out during his August 1997 Macworld keynote, saying, "Apple is executing wonderfully on many of the wrong things. The ability of the organization to execute is really high, though. I've met some extraordinary people at Apple. There's a lot of great people at Apple. They're doing some of the wrong things because the plan has been wrong."

That's changing. Apple has a plan, and Jobs has said that this plan will become clear by the time of Macworld Expo in January. We've already seen some of the outlines of this plan. Jobs has said that 70 percent of the things that Apple was working on weren't the right things, while 30 percent were gems. Jobs plans to concentrate on what he sees as that 30 percent. Knowing what to concentrate on and what to let go will help Apple survive. Here is where Apple will be putting its energy:

**Design and publishing:** Although Apple's fortunes in other areas haven't been so good over the past year or so, the company remains strong where people do creative work—despite Microsoft's push into the publishing arena with Windows NT. Jobs reiterated Apple's commitment to publishing during the Seybold trade show. He announced new versions of ColorSync and QuickTime, and said that AppleScript, an important technology to many companies, would be further developed and would make it into Rhapsody. Jobs also invited executives from Adobe Systems, Macromedia, and Quark to speak—he had invited them into Apple to see where the company was headed.

**Education:** Jobs had an epiphany when he learned that the number one education company was Apple, despite the company's recent troubles. He then decided that this should be one of the focus areas. Apple recently announced its Power of 10 education promotion,

whereby people who purchase new Macs can designate a school to receive a credit of 10 percent of the purchase price toward new Apple hardware, software, or staff development programs.

**Marketing:** Jobs noted that Apple spends \$100 million a year on education, but you'd probably never know it. To bring Apple back to its heyday as an innovative advertiser, Apple enlisted TBWA/Chiat/Day, the company that produced the famous 1984 Apple commercial. The result? The "Think different." campaign, which is primarily an image campaign in the vein of "Just do it" and "Got milk?". These ads are running in both broadcast and print media. Apple also custom-painted buses, billboards, and banners to round out the push. Ads that feature individual Apple products are also slated.

**Sales:** The flip side of selling a product through advertising is making sure that the product is available to be sold. Apple has for many years botched its dealings with retail sales outlets, and the company has five months' worth of inventory in marketing channels. Jobs has said that Apple will make changes to how it gets its products to market. Already, Apple has announced tweaks to its channel marketing program.

Also on the agenda is a reduction in the amount of time it takes old inventory to sell and new inventory to reach the market. The purchase of Power Computing assets may be a step in this direction. In that deal, Apple obtained the right to hire several people who know all about selling computers directly to the public and who know how Apple can shorten the amount of time it takes to get new products out. The Gossamer motherboard design should also make it much easier to get new models into the stores.

Steve Jobs, with his uncanny ability to focus and then move quickly, is just what Apple needs right now. Even better are the intangibles Jobs brings. Here's a man who starts speeches introducing unpopular news to his audience and nearly always ends up with a standing ovation. He's motivating employees and making us all feel better about Apple's future than we have in a long, long while. ■

**David Reynolds is solidly pumped about the future of the Mac—and of Apple.**

**"I THINK APPLE NEEDS TO WORRY LESS ABOUT COMPETING WITH MICROSOFT AND WORRY MORE ABOUT DOING THINGS THAT ARE DIFFERENT."**

**"THE MAC OS IS AN INCREDIBLE CORE ASSET TO APPLE, AND WE'VE BEEN WALKING ALL OVER IT. MOST PEOPLE THINK THAT WE'RE ABOUT TO ABANDON THE MAC OS. WE JUST RELEASED MAC OS 8, WHICH WAS CODE-NAMED TEMPO. SO WE JUST RELEASED TEMPO. OUR NEXT RELEASE NEXT YEAR IS CODE-NAMED ALLEGRO. THEN MOST PEOPLE THINK OUR NEXT RELEASE WILL BE REQUIEM. IT'S CRAZY. IT'S ABSOLUTELY CRAZY."**

**"ANOTHER BOLT OF LIGHTNING IS THAT APPLE PLUS MICROSOFT EQUALS 100% OF THE DESKTOP COMPUTER MARKET. AND SO, WHATEVER APPLE AND MICROSOFT AGREE TO DO—IT'S A STANDARD."**

—STEVE JOBS, MACWORLD BOSTON KEYNOTE





"WOMAN WITH A FLOWER" by PAUL GAUGUIN 1891



"BALL AT THE MOULIN DE LA GALETTE" by PIERRE AUGUSTE RENOIR 1876



"LINKS LS MACINTOSH" by ACCESS SOFTWARE INC. 1997



## NEW LINKS LS FOR THE MACINTOSH—TRULY A WORK OF ART

Seconds after Links LS Macintosh lights up your screen you may feel compelled to frame it. With up to 16.7 million colors, nothing compares to the detail in every leaf, blade of grass, and skyscape on the newest addition of the world's most award-winning line of golf simulators.

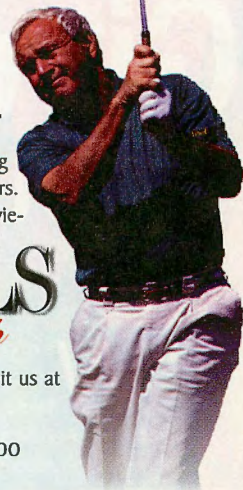
Links LS Macintosh proudly features the Grand Master of Golf, Arnold Palmer. You'll marvel as the legendary Arnie tees off as a movie-quality 30 frame per second animation. Packed with 54 of the most beautiful holes in golf, Links LS Macintosh features the Kapalua Plantation and Kapalua Village courses in Maui, along with Arnie's home course at Latrobe Country Club, near Pittsburg.

Other features include modem/network play, fog and microtextured grass, more realistic ball-flight dynamics, 3D virtual reality tours and exclusive multimedia footage. For more information call 1.800.800.4880 or visit us at [www.AccessSoftware.com](http://www.AccessSoftware.com). Frame not included. Requires PowerPC



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**LinksLS**  
*Macintosh*





3rd gen

# G3 Gives you Wings

**“W**e’re going to be kicking ass.” That’s Steve Jobs’ answer to concerns raised during a recent Q&A session about Apple’s future hardware prices and performance after the killing of Mac clones. And he’s right. The Power Macintosh G3—the first hardware to debut with the Jobs imprint on it—does indeed kick some serious ass. The

three versions of the Power Mac G3—two flat models that use the Power Mac 7300’s low-profile enclosure, and an AV model that comes in a brand-new minitower box—are supreme performers at very reasonable prices.

The third-generation Power Mac offers more power at a cheaper price than anything Apple has sold to date. The company completely



# The third generation of Power Macintosh takes off

By Kathy Tafel

3rd gen

## The Three Faces of G3

On orders from His Jobsness, this entire line has been renamed Power Macintosh G3. Shazaam!, the line is now simpler. Wasn't that easy? Seriously, though, just calling it G3 does help it stand out from the plethora of G2 models. The PowerPC G3 comes in three configurations, although you won't be able to tell them apart from the label:

ENCLOSURE	Desktop	Desktop	Minitower
PROCESSOR SPEED	233MHz	266MHz	266MHz
HARD DISK SIZE	4G IDE	4G IDE	6G IDE
PERSONALITY CARD	Standard	Standard	AV
EXTRAS	n/a	Zip drive	Zip drive
PRICE	\$1,999	\$2,399	\$2,999

Every model ships with 32MB SDRAM, 512K backside cache, and a 24X CD-ROM drive. Prices subject to change.



FIND  
BENCHMARK  
RESULTS on  
The Disc.



FIND POINT-  
ERS to more  
resources  
and a RAM  
glossary at  
our Web site.

Photos by Aaron Lauer

redesigned the innards not only to take advantage of superspeedy new PowerPC chips but also to give the company more configuration flexibility. The machines are truly powerhouses for the rest of us, ranging in price from \$2,000 to \$3,000.

The Power Mac G3 is also a harbinger of changes to come next year.

Apple is finally doing what Gil Amelio promised a year and a half ago: simplifying the product lineup. In 1997, the company offered seven desktop lines. In 1998, expect this to be whittled down to three or less, with 80 to 90 percent of those machines based on the new motherboard inside the Power Mac G3 machines.



## PowerPC G3

The G3 in Power Macintosh G3 comes from the new PowerPC G3 CPU, or third-generation PowerPC processor (the 601 was the first, and the 603 and 604 families were the second, and now Apple has stopped using numbers). Third generation means a new manufacturing process, Mac OS performance optimizations, and new cache architecture. The manufacturing process makes the chip smaller, which means it costs less money, requires less power, and radiates less heat. The mini-tower version generates so much less heat than the Power Mac 9600, for instance, that Apple removed the fans from the inside door of the case.

Third generation means engineers were able to refine the chip especially for the Mac OS. The first-generation PowerPC chips were made just to get the new chip on the market. The second-generation chips were faster and smaller. The G3 chips are the first to actually optimize Mac OS operations. The chip engineers examined how six popular Mac programs worked with the chip, looking for bottlenecks to eliminate. The end

result is that a program such as Microsoft Excel now launches in two to three seconds instead of eight to 20, and certain Adobe Photoshop filters run faster. That's just one reason why rating CPU performance by megahertz becomes a thing of the past with the Power Mac G3.

Additionally, a revamped cache architecture helps a Power Macintosh G3 using the PowerPC G3 chips running at 233MHz or 266MHz outperform a Power Mac 9600/350 or 6500/300. Cache holds the most recently used data or instructions for the processor in very fast memory so that the CPU can grab the data as quickly as possible. The shorter the physical distance between the processor and the cache, the faster the computer. The fastest cache—Level 1 (L1)—lives inside the chip, and the PowerPC G3 has twice as much built in as previous chips: 32K for instructions and 32K for data. Adding more L1 cache was just the start.

Adding any more L1 cache to the chip would make it too expensive and too hot, so the chip engineers devised a new way to

make the Level 2 (L2) cache faster. Previously, the L2 cache resided on the motherboard and communicated with the processor at the bus speed using the same controller as memory and PCI calls, hindering its efficiency. The overhauled PowerPC G3 chip communicates directly with the cache without going through an intermediary, enabling Apple engineers to take the L2 cache off the motherboard and put it right next to the processor.

This new *backside* cache boosts speed in more than one way. Because the cache is closer to the processor, data takes less time to travel back and forth. Because it's not on the motherboard, it's not stuck at the bus speed. Apple's new machines ship with 512K of L2 cache running half as fast as the processor, instead of one-third or one-fourth as fast, as in certain older machines. Finally, because the cache isn't competing with memory and PCI calls, all three—L2 cache, memory, and PCI cards—run more efficiently. The only drawback is that the PowerPC G3 can't crunch floating-point numbers as well as the 604 can, but that

## Power Macintosh G3 Kicks Ass

To see just how fast these speedsters really sprint, we put them through the Norton Utilities System Info benchmark program. We also wanted to see how well the new systems fared against two systems that met an untimely end. The PowerMac 9600/350 was the world's fastest—rated by clock speed—desktop machine until supply problems forced Apple to discontinue the line. Motorola's StarMax 6000/266 would have been the world's first CHRP machine. Like the Power Macintosh G3, it used a 266MHz PowerPC G3 chip running on a

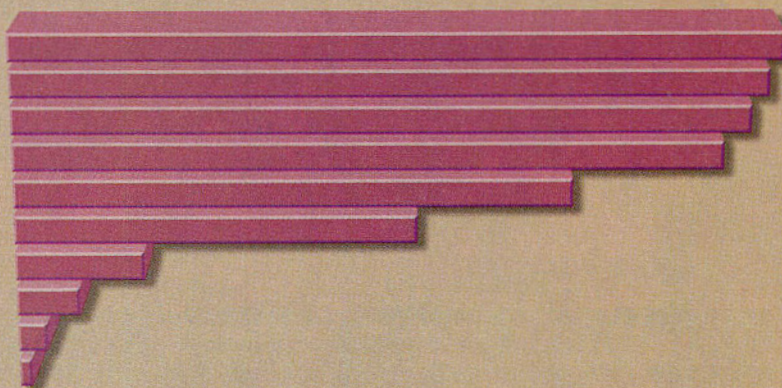
66MHz system bus. Unlike Apple's new Macs, the StarMax 6000 would have used many more industry-standard parts and would even have icky PC I/O (parallel printer port, anyone?). It would also have shipped several months earlier than the Power Mac G3. So, how do Apple's sportsters fare against the company's previous fastest machine and a cheapo CHRPster?

Simply put, the Power Mac G3 kicks ass. Overall, this Mac outperformed both the StarMax 6000 and the 9600/350. To be fair, the StarMax 6000 never shipped, and the

machine Motorola generously provided was beta material. However, it would have cost several hundred dollars more than the mini-tower version. The blowout of the 9600/350 proves that processor speed is no longer an accurate measure of a system's overall performance: Better bus speed and backside cache beat out cycles every time. To see how much faster these machines are than your current system, check out the benchmark results on The Disc. Here's an overview of the overall results for the totally cool third-generation Power Macintosh.

### System

Power Mac G3 (266)	600
StarMax 6000/266	591
Power Mac 9600/350	578
Power Mac G3 (233)	558
PowerBook G3	440
Power Mac 8600/200	319
Power Mac 6100/60 (reference system)	100
Quadra 840 AV	47.1
Mac IIfx	19.7
Mac II	6.76
Mac Plus	0.961





almost doesn't matter (see "Power Macintosh G3 Kicks Ass," p42).

## Bump Up the Bus

Next-generation PowerPC chips need a next-generation motherboard, and they've got one in the Power Macintosh G3's Gossamer. This modernized motherboard features a blazing 66MHz bus speed, allowing the PowerPC G3 chip to do more at the same time. The bus synchs up everything on the motherboard, allowing the various components, such as PCI cards and RAM, to talk to each other—at one specific speed. Until Gossamer, the bus speed

had been stuck at 50MHz, slowing down speedier processors.

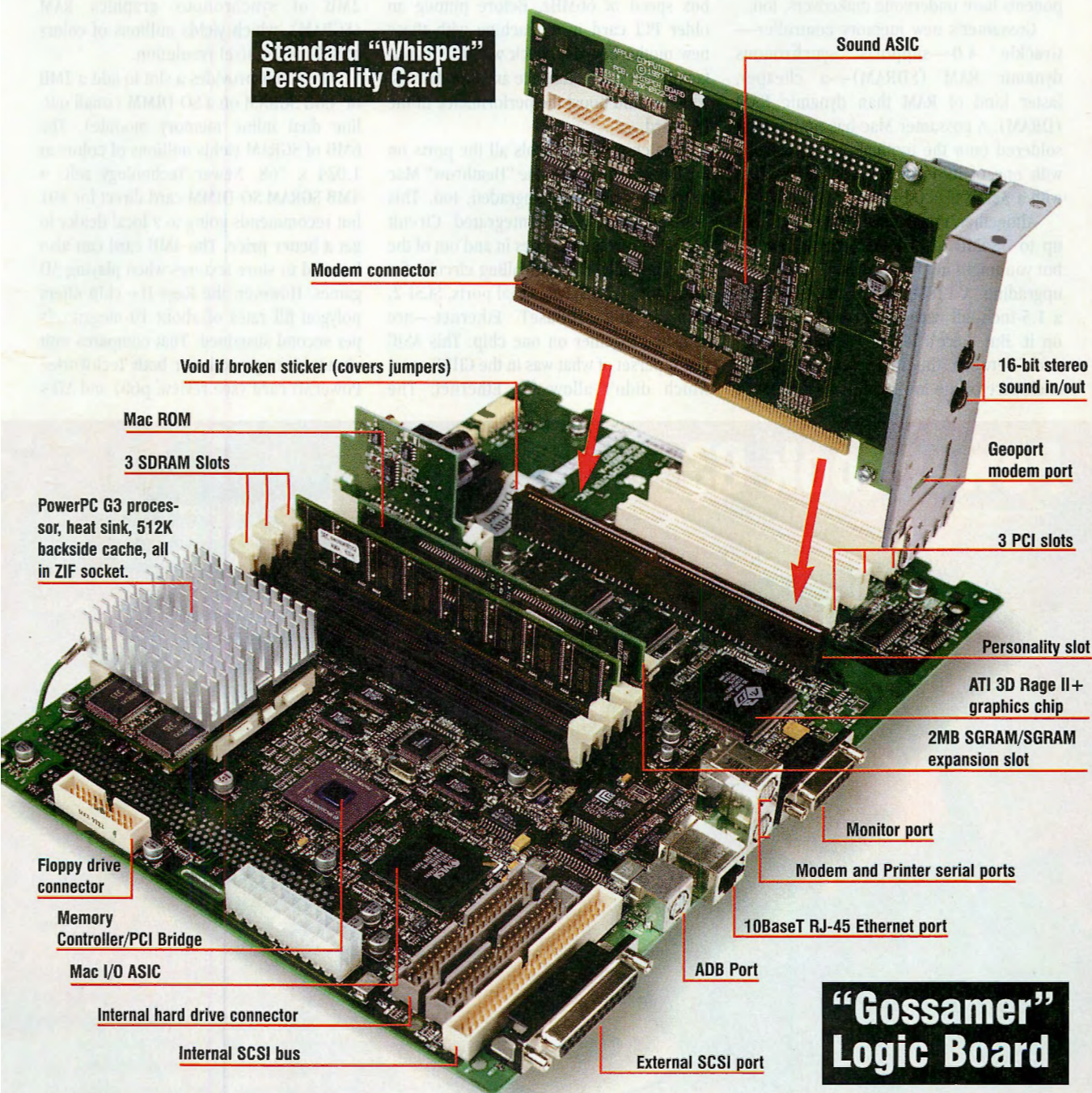
PowerPCs now attain speeds upwards of 300MHz and waste a lot of time waiting for data that's traveling over the bus. For instance, the 9600/350's processor runs seven times as fast as its 50MHz bus. As long as it's just processing memory in a cache, the CPU is an amazing number cruncher. But as soon as it needs to access data elsewhere—to save a file to the hard drive, for instance—the processor must slow down to one-seventh its natural speed.

Faster bus speeds are necessary to reduce this ratio, but getting there is not as

easy as adding a faster clock chip. When electronic devices speed up, they produce more heat. Some components fry at higher speeds, so even though the processor runs fast, other components can't. To get a faster bus speed, Apple had to test the rest of the components to make sure that they could operate at the high speed.

Gossamer's bus speed allows the processor to do much more. The 266MHz chip runs only four times as fast as the bus, and the 233MHz chip runs just 3.5 times as fast as the bus. The new chips run much more efficiently with this faster speed. Gossamer kicks ass.

### Standard "Whisper" Personality Card



### "Gossamer" Logic Board





## Memory

The enhanced processor and accelerated bus are simply two obvious new features of the logic board; the rest of the components have undergone makeovers, too.

Gossamer's new memory controller—Grackle 4.0—supports synchronous dynamic RAM (SDRAM)—a cheaper, faster kind of RAM than dynamic RAM (DRAM). A Gossamer Mac has no memory soldered onto the motherboard—it ships with one of its three memory slots filled with a 32MB SDRAM DIMM.

Altogether, those three slots could hold up to 384MB of SDRAM (128MB each), but you might not get the Mac closed after upgrading. A 128MB SIMM needs at least a 1.5-inch-tall card to fit all the memory on it. But there's just a 1.15-inch clearance between the logic board and the enclosure of the low-profile version, so it

currently can support only an extra 192MB of SDRAM (64MB per card). Fortunately, the minitower has enough room to fit 1.5-inch memory cards.

## Expansion and I/O

Gossamer's board offers three PCI slots. However, third parties have been able to test their PCI cards only at the previous bus speed of 50MHz because, of course, that's all that was available. There is the possibility that such PCI cards might experience glitches running at the faster bus speed of 66MHz. Before putting an older PCI card in a machine with these new motherboards, check with the manufacturer to see if there are any new drivers, which would boost the performance of the PCI card.

The chip that controls all the ports on the back of the Mac—the "Heathrow" Mac I/O ASIC—has been upgraded, too. This Application Specific Integrated Circuit (ASIC) controls what goes in and out of the Mac. Basically, the controlling circuits for every port—ADB, two serial ports, SCSI-2, display, and 10BaseT Ethernet—are squished together on one chip. This ASIC is a superset of what was in the CHRP spec, which didn't allow for Ethernet. The

Ethernet port now supports only an RJ-45 jack—the AAUI port is gone.

## Video

Apple started using ATI Technologies' video chips in the Power Mac 6500. That Rage II chip offers accelerated scrolling, 320-x-240 video capture at 30 frames per second, and adequate 3D acceleration. The Gossamer board uses ATI's Rage II+ chip, which offers marginal performance improvements but adds a motion compensation feature for MPEG2 decoding (used with digital versatile discs (DVD) in the PC world, very curious...). On the board is 2MB of synchronous graphics RAM (SGRAM), which yields millions of colors at 832-x-624-pixel resolution.

Gossamer provides a slot to add a 2MB or 4MB SGRAM on a SO-DIMM (small outline dual inline memory module). The 6MB of SGRAM yields millions of colors at 1,024 x 768. Newer Technology sells a 4MB SGRAM SO-DIMM card direct for \$91 but recommends going to a local dealer to get a better price. The 4MB card can also be used to store textures when playing 3D games. However, the Rage II+ chip offers polygon fill rates of about 10 megapixels per second sustained. That compares with about 45 megapixels for both TechWorks' Power3D card (see review, p60) and ATI's

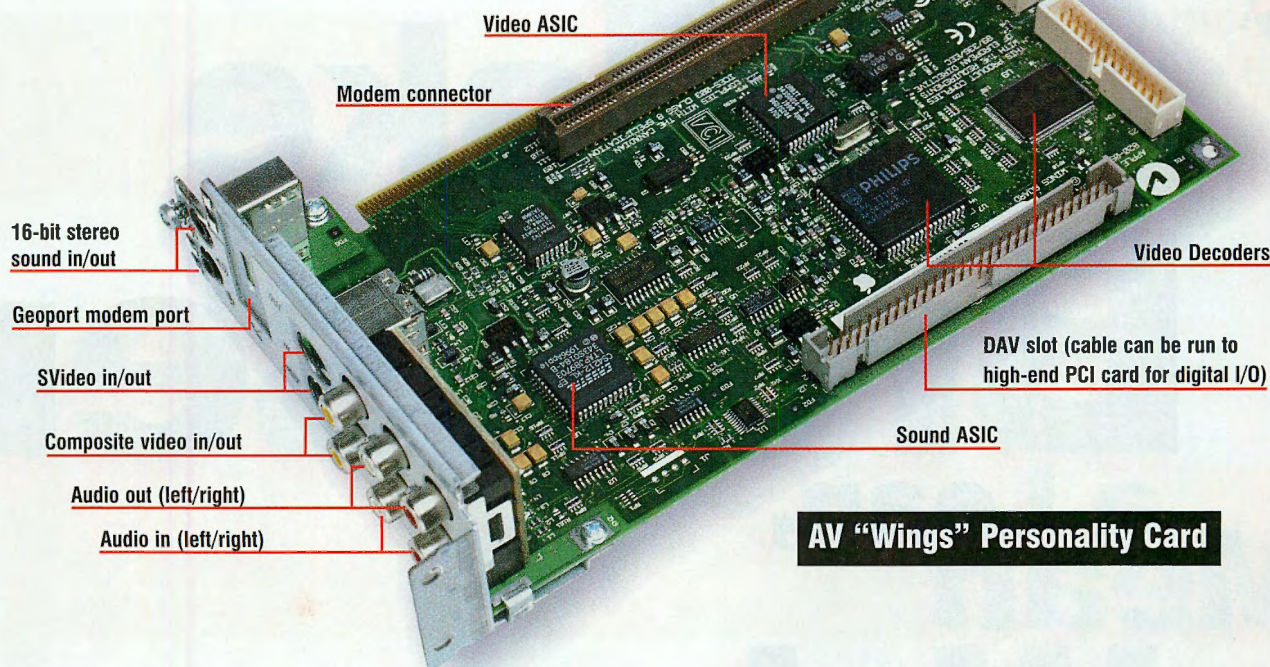
# PowerBook G3



The PowerPC G3 chip doesn't consume much power or produce much heat, which makes it ideal for PowerBooks. Apple wanted to get a machine to market using the new chip as quickly as possible and did whatever it took to get the PowerBook G3 ready. Although it's clearly a price/performance winner, the Power Macintosh G3 lineup clearly cut some corners to be offered at such low costs: SGRAM for video simply does not have the bandwidth to function effectively at the high resolutions (more than millions of colors at 1,024 x 768) needed for graphics-intensive work.

Apple didn't cut any such corners with the PowerBook G3. This ultimate mobile Mac also has a new motherboard design running at a bus speed of 50MHz. The chip runs at 250MHz and has 512K of backside cache running at 100MHz (a 2.5:1 ratio). Add to that a 12.1-inch display that can show 18-bit color (about 260,000 different colors), 32MB of EDO RAM, a 20X CD-ROM drive, 33.6Kbps modem, and 5GB of hard disk space, and you've got one killer machine. It runs about 1.8 times faster than a Power Mac 9600/200, and 2.2 times faster than a PowerBook 3400/240. And you will pay for the privilege. At \$5,699, this is no notebook for the masses.





**AV "Wings" Personality Card**

own XClaim VR card based on its new Rage Pro chip. (Tip: To get better game performance, spend money on a 4MB 3D card, not a 4MB memory card.)

## Multiple Personalities

Glaringly missing from the above mix are sound I/O, a modem connector, and video circuitry. Apple chopped those features off the main motherboard and put them on "personality" cards, which allow Apple to be much more flexible when configuring machines for different markets. The Power Mac G3s come with one of two cards. The standard card—"whisper"—has audio I/O and a modem connector (it doesn't necessarily have a modem in it). The AV version—"wings"—adds the 24-bit video I/O found on the 8600, plus a DAV (digital audio video) connector for processing digital audio. The AV personality card will be sold as a service part, so conceivably it could replace a machine using the standard card, but that hasn't been tested. Unlike slots of years past—the PDS, for instance—this is not a so-called third-party opportunity; for now, anyway, Apple is reserving it for its own use.

The personality cards allow Apple to configure machines for different markets without redesigning the motherboard each time. But there's another reason Apple designed the cards this way. Without that circuitry on the logic board, Apple can use the PC world's Mini-ATX size specification—for a cost savings of about 30 percent. Normally, only two motherboards can be cut from a standard panel. The Mini-ATX dimensions allow four boards to be

cut from the same panel, eliminating a lot of waste.

## The Boxes

The insides aren't the only thing Apple changed. New enclosure designs make it a piece of cake to add memory, PCI cards, or extra storage. The PowerPC G3 low-profile versions use the Power Mac 7300's "outrigger" case. Simply hold onto the front, press and hold two buttons, and tug. Off comes that case. The power supply and drive bays swing out, and—voilà!—easy access to RAM and PCI slots. One other advantage to the small motherboard size is that it allows the hard drive to be placed at the back of the machine on the bottom, freeing up an extra drive bay in front to be filled with a Zip drive.

The 8600 and 9600 have awesome access, too. The K2 tower design flips open after you pop off the side door by pressing the groovy green button. The PowerPC G3 minitower design, code-named K1, shrinks the tower and removes the fan from the side door. The PowerPC G3 just doesn't generate enough heat to require cooling. (Tip: Be sure to add a fan when filling up the minitower's drive bays.)

## Flexibility

The signature of the Power Mac G3 is flexibility. Its motherboard is able to serve multiple needs with the personality card but won't be limited to the three configurations now available. Gossamer can also run with an 83MHz bus speed and is not constrained to just the 233MHz and 266MHz processor. Unlike Apple's previous processor card

model, the PowerPC G3 chip and its backside cache are connected to the motherboard via a Zero Insertion Force (ZIF) socket. This means that the processor is easily removed. Apple is being very careful not to state that the machine is upgradable. By law, upgradable means that the company making such a claim is required to provide that upgrade. A clever jumper set tells the motherboard how fast the processor and bus are. The jumpers are protected by a sticker warning that removal voids the warranty. (Tip: Apple will not give customer support on a system with a sticker that has been tampered with.)

## G3 Gives You Wings

Did we mention that Steve Jobs was right? This mighty Mac is the fastest personal computer ever but does not carry an accordingly mighty price tag. Apple's decision to use industry standards for memory, graphics chips, and motherboard size greatly reduced the price and increased the manufacturing flexibility. The standard-size motherboard allows the company to manufacture the machines all over the world, letting Apple respond more quickly to regional demands. Next year, with desktops almost entirely dependent on one motherboard design, Apple will not end up with thousands of machines nobody wants and no machines everybody wants. The Power Macintosh G3 kicks ass. ■

**Kathy Tafel will wear a black mock turtleneck, a V-neck sweater, olive-drab shorts, and Birkenstocks for a whole month if she can just have one of these Macs.**





browser

# Make Your Browser a Lean, Mean Web Machine



FIND  
CONFLICT  
CATCHER 4  
and the  
QuickTime  
plug-in on  
The Disc.

By J. S. Colt

**H**ave you ever wondered what your choice of Web browser—Microsoft Internet Explorer or Netscape Navigator—says about you? If you have, get a life! No one cares which browser you use, except maybe Bill Gates and Mark Andreesen, and what do a couple of gazillionaires matter, anyhow? What counts is what your browser does for you: how effectively it lets you experience Web sites in all their interactive glory, and how easily it lets you keep track of where you've surfed and where you'd like to surf again. With that in mind, here's the rundown on how to keep your browser in top shape—speedy, lean, and healthy.



# Fast off the Line

I think it was that bald sage on *Kung Fu* who said, "The first step on any journey is the hardest."

One interpretation, Grasshopper, is that the worst obstacle to surfing the Web is waiting for your browser to launch and simply get you online. Fortunately, there are a few things you can do to relieve this pain.

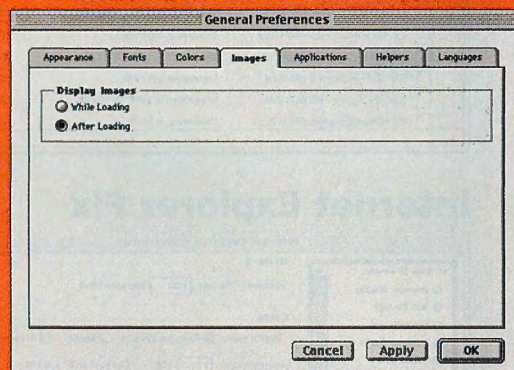
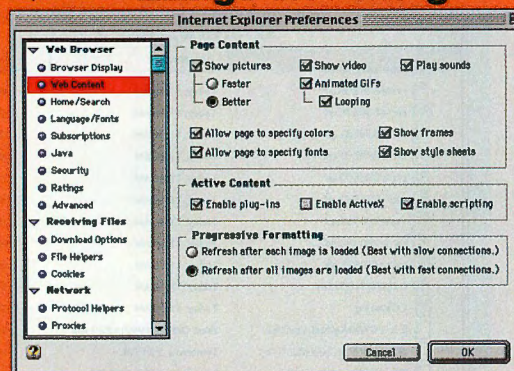
For starters, you should immediately switch from your browser's default home page. Both Netscape's and Microsoft's home pages are image and data intensive, so they load slowly. Explorer and Navigator both give you the option of opening to a blank home page, which takes zero time to load. Almost as quick, but far more convenient, is a local home page, containing links to your usual sites, that lives on your hard drive instead of on the Web. You can make one easily by using a WYSIWYG page creator such as Adobe PageMill (or by using the simple template available on The Disc).

Another step to relieve browser-launch lag is to minimize the number of plug-ins your browser loads (which also saves on RAM usage). Conflict Catcher 4 from Casady & Greene and Now Startup Manager 7.5 from Now Software both enable you to turn plug-ins on and off; use them to keep seldom-used plug-ins stashed when you don't need them. Finally, if you don't view Java regularly, disable it—initializing it eats time.

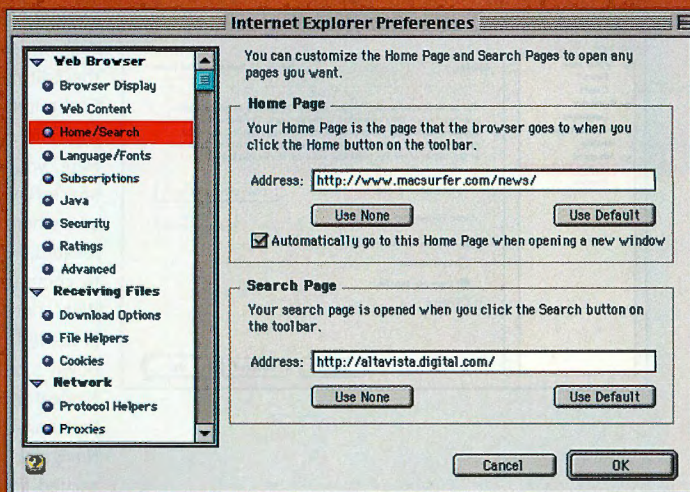
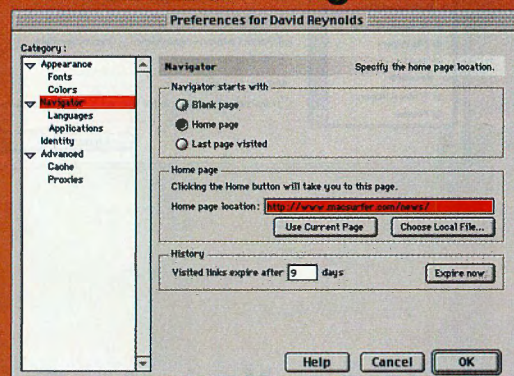
## Hot Tip:

Allow a page to finish loading before you move on, if you plan to return. That way, the whole page will be cached and fast.

## Quick Image Handling



## Faster Home Page



## Internet Explorer 4

In Explorer 4, disable looping of animated GIFs (or, if you're really hurting for speed, disable animated GIF playback altogether), which will save you the time it takes those GIFs to download. To do this, select Preferences... from the Edit menu, select the Web Content item in the window on the left, and uncheck the Looping or Animated GIFs checkboxes. You also can adjust when images are displayed and whether or not plug-ins, frames, and JavaScript are enabled.

## Netscape Navigator 3

In Navigator 3, you can set images to load last so that you won't have to wait to see text-only links. To do this, select General Preferences... from the Options menu, then select the After Loading button in the Images window. You'll be able to click on those text-only links without waiting for large image files to finish downloading.

## Netscape Navigator 4

To change the default home page in Navigator 4, select Preferences... from the Edit menu, then select the Navigator item in the list on the left. Here, you can control where Navigator obtains its home page when launched or when the Home button is pressed. To change this, just type the URL of the page you want in the center text box. You can instead choose a local HTML file (even your bookmarks file), or you can have Navigator start with its home page, a blank page, or the last page you visited.

## Internet Explorer 4

To change Explorer's default home page, select Preferences... from the Edit menu, then click on the Home/Search item on the left. Type the URL of the home page in the top text box. Or you can tell Explorer to use the default home page (a little something from Microsoft) or to use no home page at all. Here you also can specify the page that's loaded when you hit the Search button.



# Trashing the Cache

**A**fter all this effort to speed your browser, it may seem strange for us now to issue a warning against a scheme that accelerates page loading. Nevertheless, caching downloaded pages on your hard disk can slow your entire Mac to a crawl in the name of browser speed: Tons of teeny cache files promote data fragmentation, which forces your hard disk to work too hard—and too slow.

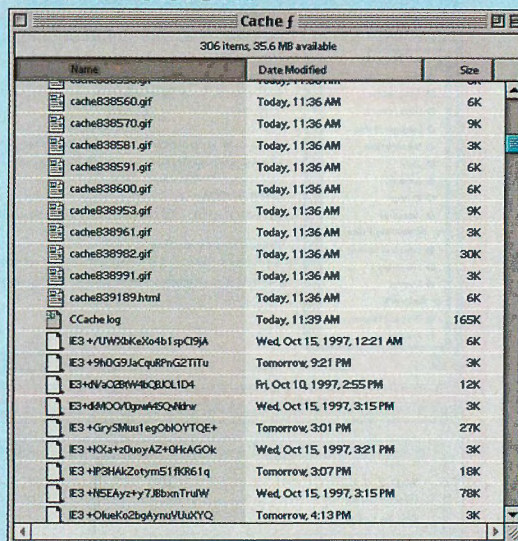
Caching does make sense for pages you visit all the time: Instead of downloading a full page over the Net (slow), it loads from your hard drive (quick), and only the page elements that have changed since your last visit are sucked through your modem's relatively small pipeline. The trouble is, elements of every page you visit are cached in a folder on your hard drive and, if left unchecked, can quickly become an unruly mob. Some cached items, such as QuickTime movies and Java applets, are just plain huge. Others are teeny but can get scattered around your drive and lead to drive-debilitating file fragmentation. Worse still, cache files bear cryptic names such as cache1247787, so there's no easy way to tell files for favorite sites from those for sites that could be Worst of the Web contenders. The solution: Prune your cache files regularly.

You can do this automatically by using version 4 of either Internet Explorer or Netscape Navigator to set caches to eliminate files that exceed certain sizes or whose ages exceed the number of days you specify. Start with default settings, but play with them until you find settings that keep your cache manageable and still make efficient use of the cache. Keep an alias of each cache folder handy. View contents by size and date once in a while to see what kinds of files seem to be cluttering things up; seek and destroy old and/or especially large cache files, or adjust your automatic settings accordingly.

## Cache Tips:

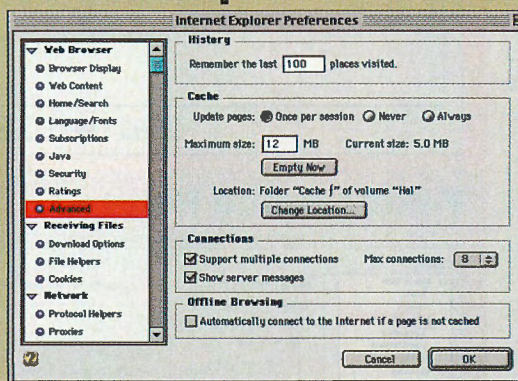
Because browsers create so many cache files and those files are so small, and always changing, browser caching can really fragment a hard drive. (In the worst-case scenario, there may be thousands of these small files filling the cache folder on your hard drive.) Therefore, it's a good idea to defragment the volume on which your browser's cache folder resides. It will help speed your hard drive and should help speed your browser, too. Consider putting your browser's cache somewhere besides the System Folder, preferably on another partition. This arrangement will keep the cache from interfering so much with System operations.

## The Problem



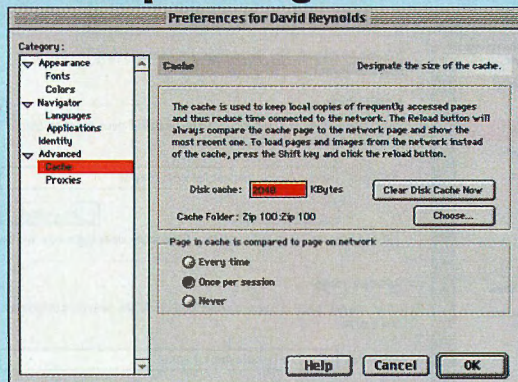
This cache folder contains files from both Netscape Navigator and Internet Explorer. Although the Navigator cache file names make a little more sense compared with the Explorer cache file names, there's no way to know if these cache files contain something useful without opening them. And with hundreds of items that use anywhere from a few to hundreds of kilobytes of hard disk space, this folder can be a real problem.

## Internet Explorer Fix



To control how Explorer handles caching, select Preferences... from the Edit menu, then select Advanced from the list on the left. You can control how much disk space is used by Explorer for cache and can tell the browser how often to check those cached pages against their live Web counterparts. You also can empty the cache and control where the cache folder is located. This panel is where you set Explorer's History parameters, too. Although it's nice to record all the places you've visited, you'll see a slowdown if you set the number too high.

## Netscape Navigator Fix



To control how Navigator handles caching, select Preferences... from the Edit menu, then select the Cache item (under the Advanced topic) from the list on the left. Here, you can set how much disk space Navigator uses for caching and where the cache folder is located. You also can tell Navigator to compare cached files with live Web content every time the page is loaded (which slows things down a bit), once each time Navigator is launched and loads that page, or never (which means Navigator will always rely on the cached files, if available).



# Don't Touch My Cookies

**M**agic cookies aren't the wares of some psychedelic Girl Scout. They're more like the stock in trade of another door-to-door canvasser—a nosy pollster or census taker. Cookies are small text files that some Web servers create and store on your hard drive through your browser. They contain information about who you are, when you last visited the site in question, which parts of the site you've explored, and so on. If a site has given you the option of storing a password on your hard drive, that password is embedded in the cookie, too. In theory, cookies are meant to help Web publishers help you. By understanding the types of information you've sought in the past, they can figure out what kinds of things they should alert you to in the future. More realistically, however, those chocolate chips of personal information in your cookie files can quickly turn to spam. Many cookies are issued by advertisers on a given site, rather than the site itself, and are used to generate promotional email address lists.

If the idea of someone building a dossier on your browsing habits gives you the creeps, have no fear. Internet Explorer 3 and 4, and Navigator 4, give you cookie control. They give you the option of accepting all cookies, refusing all cookies, or of being asked whether you accept each cookie as it comes up. The case-by-case method demonstrates there are tons of cookies out there, but because many sites distribute multiple cookies, the approval requests are really disruptive. Netscape's alternative is another option, to accept only the cookies issued and collected by sites you visit (not those of advertisers). Explorer lets you decide whether you'll accept or refuse cookies the first time you visit a site, then remembers your answer the next time you visit there. So, if you accept cookies from macaddict.com today, you won't be asked again when you visit tomorrow. For my money, that's the best option. The shareware utility WebFree also can be set to block cookies (among other things). Find WebFree on The Disc.

## Cookie Safety Note:

Many folks don't like the idea of some unknown server recording information on their hard drive and then another server gathering that information. It's just not sanitary. But don't worry. Viruses and other digital nasties cannot be spread via magic cookies. It's better to be paranoid about the dangers of downloaded software than about the information-broking habits of enchanted snacks.

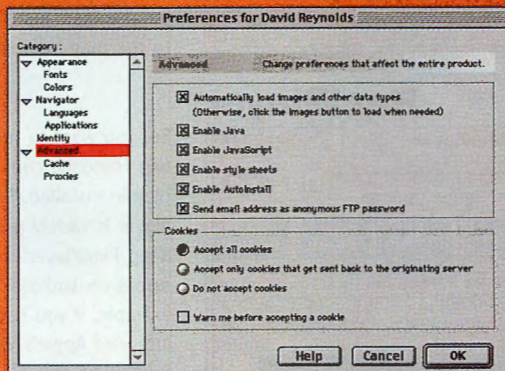
## Cookie Count



The shareware control panel WebFree does a few nifty things, and among them is the ability to block magic cookies. The cool thing about WebFree is that it keeps a running tally of the number of cookies it has blocked.

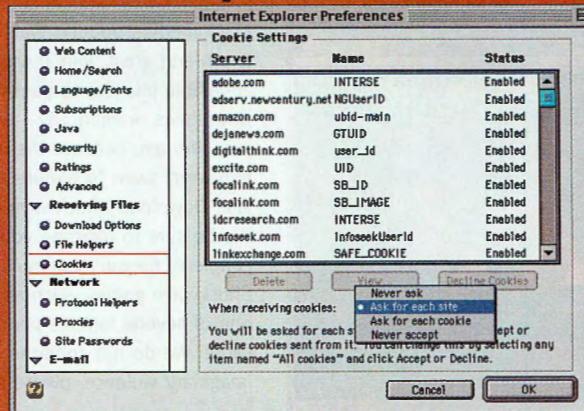
browser

## Netscape Navigator Cookie Fix



To control how Navigator handles magic cookies, select Preferences... from the Edit menu, then select Advanced from the list on the left. Here, you have four choices: Take all magic cookies that come your way; take only the cookies that are sent back to the server from which they came; block all cookies; or give a warning before accepting a cookie. Option two, accepting only cookies that return to their server, is probably the safest.

## Internet Explorer Cookie Fix



To change how Explorer handles magic cookies, select Preferences... from the Edit menu, then select Cookies from the list on the left. The control panel that comes up lets you choose whether you want to accept cookies all the time, to never accept them, or to have Explorer ask you if the cookies should be accepted at each site or for each cookie. The browser also lets you view or delete cookies from specific sites, which is very cool.



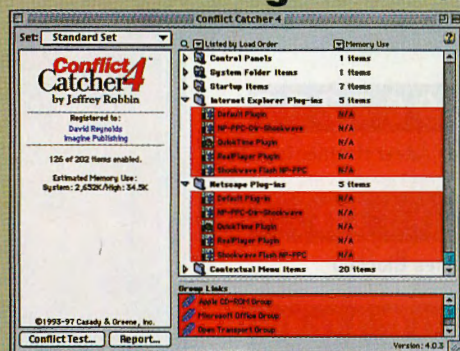
# Plug-in Away

**P**lug-ins are to your Web browser what extensions are to your System Folder: They can add lots of cool functionality

(by enabling your browser to handle different types of multimedia, for example), but they also can hog RAM and slow things down, or worse

yet, cause a crash. Here's a rundown on a few essential browser plug-ins you should have in your toolset:

## Plug-in Patrol



Casady & Greene's Conflict Catcher 4 lets you manage your Explorer or Navigator plug-ins as you would any other plug-ins or extensions. Just open Conflict Catcher, select Preferences... from the Edit menu, and select Folders from the list, on the left (sound familiar?). You should see Internet Explorer Plug-ins and Netscape Plug-ins with checkboxes. Just select the checkboxes, click OK, and you're good to go. You now can enable and disable plug-ins as you would other extensions. Find Conflict Catcher 4 on The Disc.

## QuickTime



With the QuickTime plug-in installed, you can visit Mars—virtually, that is. Here, we see a movie of the Pathfinder Mars probe. The fact that Apple developed QuickTime is only a bonus: QuickTime is simply the most widespread video and animation technology on the Web. If you don't have the plug-in, you'll miss a lot. The QuickTime plug-in, along with plug-ins for viewing Web-based QuickDraw 3D and QuickTime VR files, is included with the QuickTime System installer that shipped on recent Macs. But keep the URL handy for updates and news of the forthcoming supercool QuickTime 3.0. You can get the QuickTime plug-in at <http://www.quicktime.apple.com> or on The Disc. Just download the file and drag the QuickTime plug-in to the plug-ins folder for your favorite Web browser.

## RealPlayer



So, you want to hear what Steve Jobs had to say at the Seybold San Francisco conference? Easy enough—if you have the RealPlayer plug-in installed. Progressive Technologies' streaming-audio and -video player is widely used for Webcasts and Internet musical performances. Keep RealPlayer around, because you never know when you'll run across an audio or video program you'd like to hear or view. For example, if you had a keen interest in all things Apple, you could have attended Apple's World Wide Developers Conference last May via RealPlayer. You can find the RealPlayer plug-in and player software at <http://www.realaudio.com>. Just download the file and run the installer.

## Shockwave



Macromedia's popular Web-animation technology is a mixed blessing. It can add great animations, interactivity, and features (such as zoomable images) to pages, but it's often overused and can slow downloads dramatically—see Macromedia's own site for proof. Get it now, though, because the free registration process is a minor hassle you won't want to endure when you're blocked from a cool Shocked site. Download Shockwave at <http://www.macromedia.com>. Once you do, be sure to increase your Web browser's memory partition by a couple of megabytes. You'll need it if you plan on playing any Shockwave games, such as Celebrity Slugfest, where you can beat up one of several famous people—including Bill Gates, as shown here. (Note: We do not condone actual violence against Bill Gates. Only imaginary violence, please.)



## Microsoft Internet Explorer 4

- 4MB of RAM
- 2MB of hard disk space

**Best features:** Speedy rendering, innovative Mac-like interface, small footprint, offline browsing

**Who should use it:** Someone who likes speedy browsing without the need for intense security or other corporate features, such as white-boarding

## Netscape Navigator 4

- 4MB of RAM
- 6MB of hard disk space

**Best features:** Small footprint, more stable than its predecessors, strong security features, it's not from Microsoft

**Who should use it:** Those who like speedy browsing but need lots of built-in security

## Netscape Communicator 4

- 9MB of RAM
- 20MB of hard disk space

**Best features:** Everything—and we mean everything—is wrapped up in this huge application

**Who should use it:** Those who need the whole Web sink, including security and collaboration utilities

# Browser Face-off

Test-driving the latest Web browsers from Netscape and Microsoft reminded me (as do so many things) of *Gilligan's Island*—the episode in which a mad scientist shuffles the castaways' personalities among their bodies. They can't compete with the portly Skipper vamping like the slinky starlet Ginger, but the new browsers suggest a similarly startling role-shift between Netscape and Microsoft. Microsoft, the House of Windows that holds corporate America in its fist, continues to deliver a nifty, very Mac-oriented program—albeit one that's packed on some unbecoming bulk—in the form of Internet Explorer 4. Meanwhile, Netscape, the scrappy Internet upstart, is going corporate: Its new Communicator 4.0 package fuses the Navigator browser with a WYSIWYG Web-page-creation tool (Composer), a mail program (Messenger), a tool for creating newsgroup-like conferences (Collabra), and a host of security features to soothe office computer managers' paranoid fantasies.

In comparing Communicator 4 and Navigator 4 with what came

before, the most dramatic change—starting with the name—is in the Netscape package. The Standard version of Communicator 4.03 is a monolithic application that occupies about 20MB of disk space and requires about 9MB of RAM in its default configuration.

Netscape makes no secret of its desire to make Communicator the darling of the *Fortune* 500, and the app is great for that audience: Install it in every cubicle and—presto!—instant standard. Thankfully for those of us who use Qualcomm's Eudora or Claris EMailer as mail clients, and like it, thankyouverymuch, Netscape has bowed to popular opinion and decided to release Navigator as a stand-alone browser.

If you're a Netscape fan and don't need all those corporate communication tools, you should use it. Navigator 4.03 alone is pretty hefty, requiring 6MB of disk space and 4MB of RAM, but it's less greedy than Communicator and similar to Internet Explorer 4 Preview 1, which consumes less than 2MB of disk space and grabs 4MB of RAM.

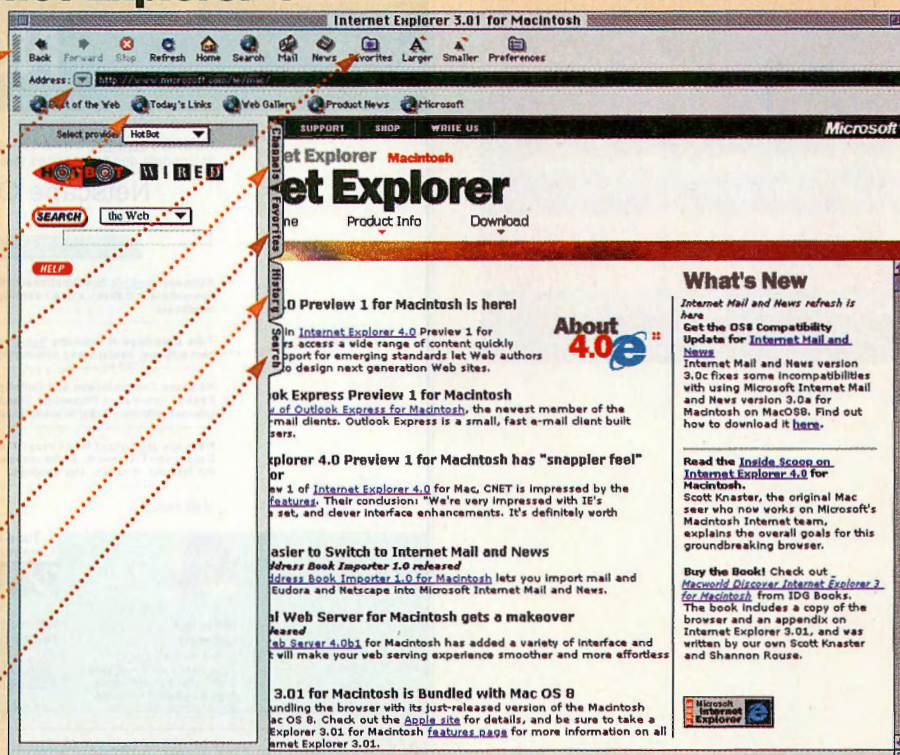
Navigator and Explorer have

different relative strengths but share one cool new capability: They both cache pages you've visited in their entirety on your hard drive, so you can navigate them and use their links even when you're not on the Net. You won't want to take this route for the page you use to track your stocks, but for pages that aren't updated minute to minute, this is great. If you use a single phone line for modem and voice, you can experience the miracle of talking to a human and looking at said human's Web site.

Both Navigator and Explorer also include support for "push" technology, which lets sites feed you software updates or information on topics you ask to hear about, without you having to browse those sites. We couldn't test Microsoft's Channels push technology because that feature wasn't enabled in the Preview 1 version of Explorer 4, but Navigator's worked just fine. (If push technology sounds like something you'd like to use, be warned that you'll probably want to install both Navigator and Explorer, no matter which one you want to

## New Features in Internet Explorer 4

1. Grab here to rearrange the toolbar, the address window, or the button bar, or to combine the three.
2. The address window thinks ahead, watching what you type and filling in the rest of the URL with a URL for a site that you've already visited.
3. Click and hold here for a list of the places you've been.
4. Put links to your favorite sites right on the toolbar. Just place the URLs in the Toolbar Favorites folder.
5. The Channels tab lets you use Internet Explorer's push technology. As of this writing, no channels are available for the Mac.
6. The Favorites tab gives you quick access to your bookmarks.
7. The History tab gives you quick access to the sites that you've already visited.
8. The Search tab gives you quick access to one of several rotating search engines, or you can select your own.





use for day-to-day browsing: Microsoft and Netscape are, well, pushing competing tools for developing push content, and each browser handles only its own flavor of the technology. Beyond these similarities, Navigator's greatest claim to fame is security; Explorer has an edge on ease-of-use, thanks to some well-designed new user-interface features.)

The coolest feature of Internet Explorer 4 is a series of tabs along the left edge of each browser window. Clicking any of these tabs, marked Favorites, History, Channels, and Search, opens a framelike window-in-a-window to the left of the screen you're browsing. (Sometimes the new window opened "on top" of the current screen, partially covering it; other times, it behaved better and shoved the main page to the right without obscuring anything. This quirkiness is probably one reason why Explorer 4 was still a preview version.) The Favorites window

contains bookmarks you've saved, and History contains a running list of links to sites you've visited, saved in folders by day. Both of these lists were menus in earlier versions of Explorer (the History list was found in Explorer 3.x's Go menu), and the menus remain, but the new arrangement requires less mousing and is easier to use, especially because all links in a list are live and able to be dragged and dropped.

The Search-tab window contains a mini query page from Yahoo!, HotBot, or another search engine. (By default, Explorer deals you a new search page each day, but you can choose a permanent one in Preferences.) The Search window is extremely handy; it doesn't force you to leave your current page to run a search, and it has the added benefit of reducing History-list clutter by preventing every Alta Vista query from being treated as a new page in your history. The Channels

window was empty because that technology wasn't yet functional in our test copy of Explorer.

Aside from 3D toolbar-button icons and a pull-down Bookmarks menu in the browser window, Navigator 4.03's user interface is largely the same as that of earlier versions. Principal changes are under the hood, and the only outward hint is a new toolbar button with a padlock icon—the security controls. Anticipating the arrival in force of online commerce Netscape did all it could to make Navigator and Communicator bulletproof communication tools. Click the Security button for the lowdown on encryption and security status of any page, and on sites built using Netscape security tools, you can issue and receive "certificates" analogous to encryption keys to conduct secure transactions or exchange confidential data. Communicator extends certificates to email and conferencing.

Although these security mea-

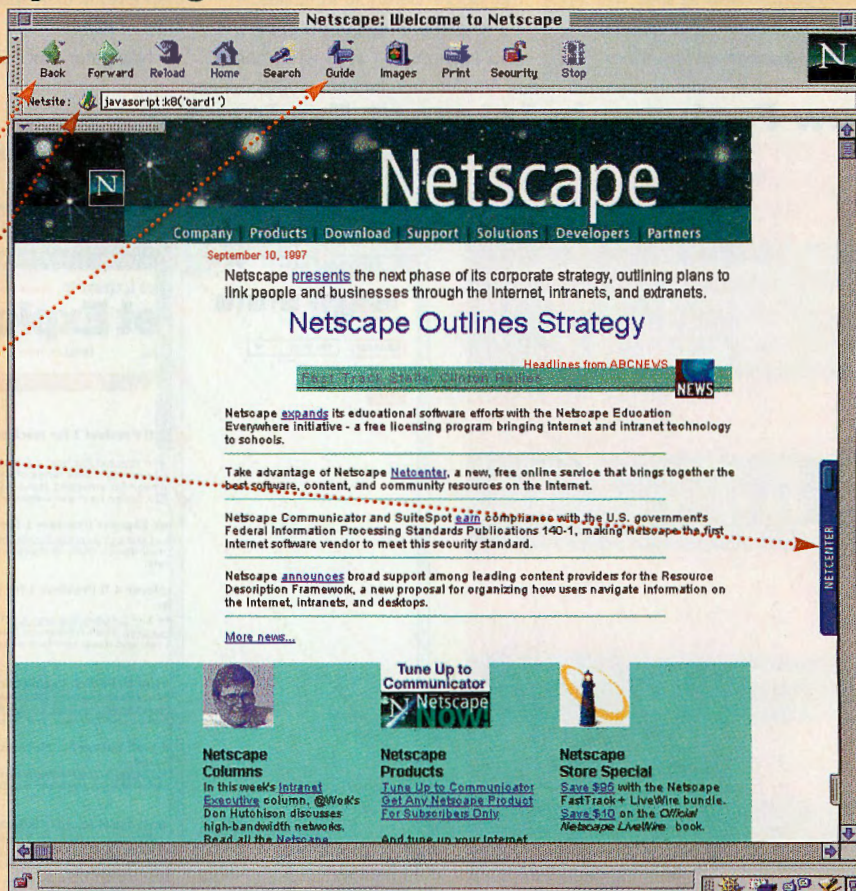
sures are impressive, they come with some hassle. When a site issues a certificate, it attaches to the specific copy of the browser you're using, so sites you're authorized to see via your desktop copy may be off-limits when you're using your PowerBook copy—unless you're religious about exporting and exchanging certificates between copies. Sites that issue Netscape-standard certificates are far from widespread on the Web, and it remains to be seen how popular they will become. But it's a fairly safe bet that some site you think is cool will adopt the scheme soon, so be prepared.

For the moment, however, Explorer's smaller application size and handy ease-of-use features makes it the Mac browser for ordinary, fun-loving folk who don't traffic in top-secret documents. ▀

Freelance writer J. S. Colt is a veteran browser, having spent much time at garage sales and on the Web.

## New Features in Netscape Navigator 4

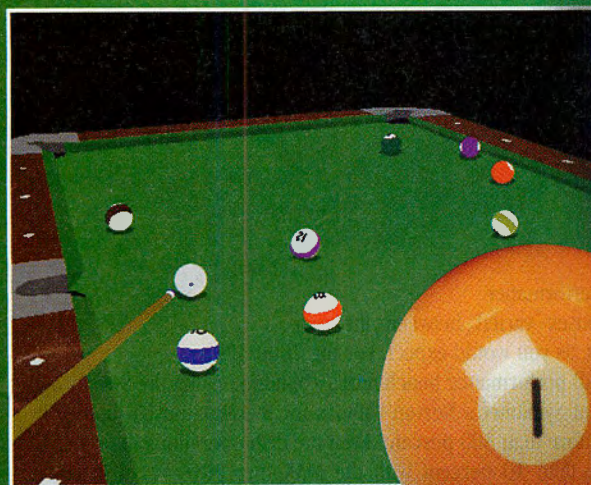
1. You can minimize the toolbar and the location window with a click, or you can swap their locations by dragging them by this handle.
2. Click and hold the Back button, and a list of places you've visited pops up under your mouse.
3. Drag the bookmark icon to the desktop, and Navigator creates a file that contains the URL for the page.
5. Click and hold the Guide button, and a list of available guides pops up.
4. This tab isn't a part of Netscape's interface. Rather, it is provided by Java.



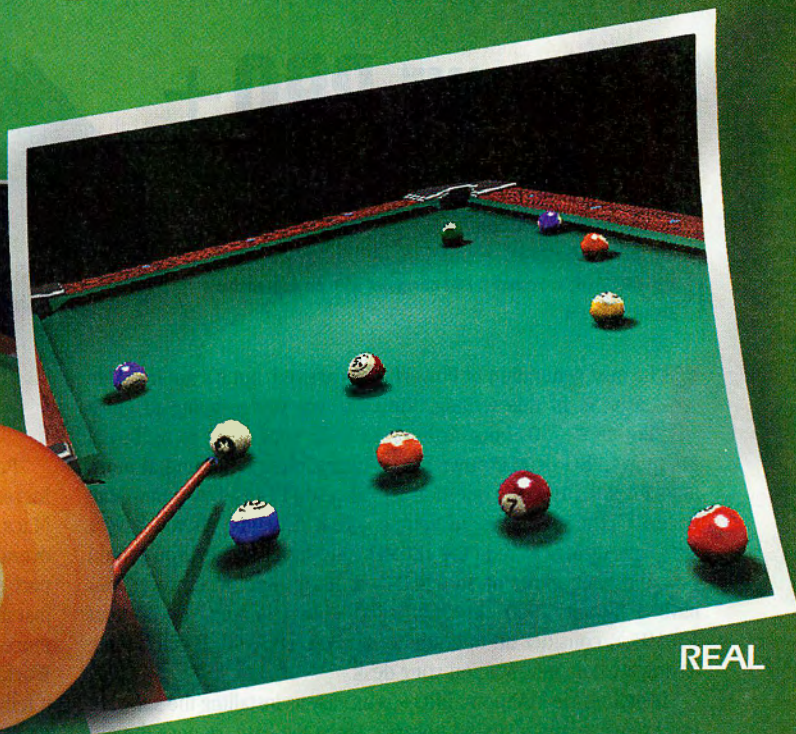


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System Requirements: Macintosh with a 68040 or higher microprocessor, 8MB RAM, color monitor and CD-ROM drive. Also accelerated for Power Macintosh.

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# reviews

Emblaze Creator, Master of Orion II, Font Reserve, and 3D World are in the house.



**FREAKIN' AWESOME**  
The most valuable products, the coolest gizmos.



**SPIFFY**  
A solid offering. Overall a good investment.



**YEA, WHATEVER**  
A few good features, but generally a waste of time and money.



**BLECH!**  
We hate to even blotch our pages with the thing.

## MAXpowr PRO+

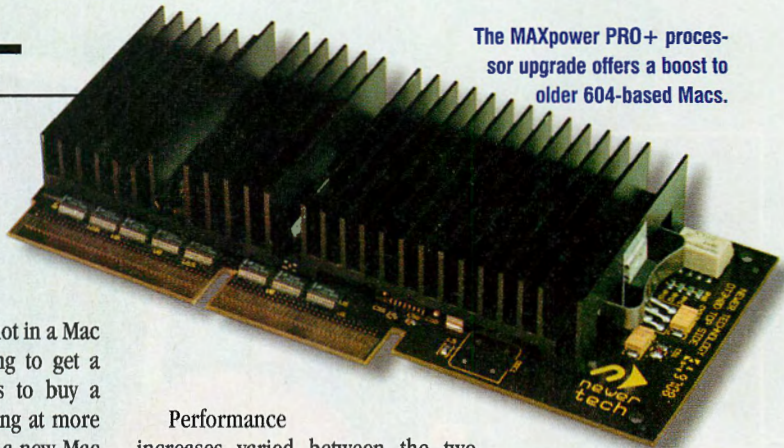
**COMPANY:** Newer Technology

**CONTACT:** 800-678-3726 or 316-943-0222,

<http://www.newertech.com>

**PRICE:** \$2,499 (SRP)

**REQUIREMENTS:** PowerPC 604 computer with an upgradable processor card



The MAXpower PRO+ processor upgrade offers a boost to older 604-based Macs.

The next generation of PowerPC has arrived, but it's not in a Mac case. As of this writing, the only way you're going to get a PowerPC 750 (aka Arthur) CPU in your Mac is to buy a MAXpowr PRO or MAXpowr PRO+ upgrade card. Starting at more than \$1,300 (list), the question is, "Shouldn't I just buy a new Mac instead?" The answer is, of course, "That depends." If you have a fairly speedy Mac (say, in the 180MHz-and-faster range), you should probably wait a year or so and buy a newer Mac. If, however, you have a slower 7500- or 7600-class Mac (running slower than 150MHz), consider an upgrade to the PowerPC 750. It will be like having a whole new Mac on your desk.

Installing the MAXpowr PRO+ is as easy as installing the software (an extension and a shared library). Open the case, remove the old processor card, insert the new processor card (this can require some force), reset the motherboard (just press the button next to the card slot), and restart your Mac. With easy-open Power Macs (such as the 7500 or 9600), this literally takes only a couple of minutes. With more, shall we say, challenging Macs (such as the 9500), installing the MAXpowr PRO+ upgrade card may cost you an afternoon and a finger. Even so, swapping the processor card is easier than installing RAM in these towers. In both of our test Macs (a Power Macintosh 9500/180MP and a Power Macintosh 7600/120), the installation proceeded without incident. Both Macs booted right up when the power button was pressed.

### Performance

increases varied between the two Macs, as you would expect. For the 7600/120, overall performance benchmarks (obtained using the System Info part of Symantec's Norton Utilities for the Macintosh) jumped by just more than 300 percent. Even the disk operations improved by more than 10 percent with the MAXpowr PRO+ card installed. Working with the upgraded 7600/120 confirmed the benchmarks; it felt like using a cutting-edge Mac.

## Two Arthurs From Which to Choose

The Newer Technology PowerPC upgrade cards come in two varieties: the MAXpowr PRO and the MAXpowr PRO+

### MAXpowr PRO

- PowerPC 750 at 250MHz
- 512K of backside cache running at 125MHz
- \$1,395 (SRP)

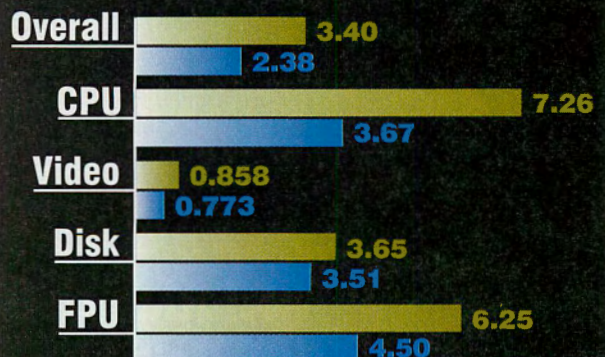
### MAXpowr PRO+

- PowerPC 750 at 266MHz
- 1MB of backside cache running at 177MHz
- \$2,499 (SRP)

■ MAXpowr PRO+ ■ Dual 180MHz 604e for 9500/180MP

## NORTON UTILITIES SYSTEM INFO

The higher the number, the better the performance.



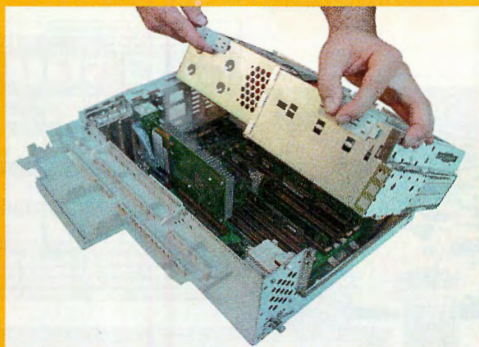
## PHOTOSHOP FILTERS

The smaller the number (in seconds), the faster the machine.





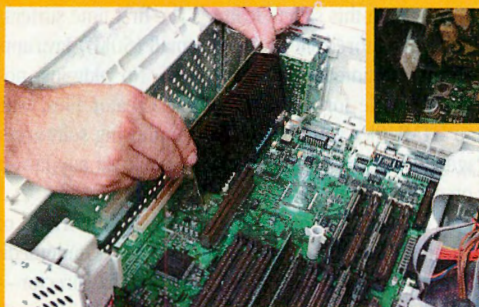
## CRAMMING IN THE NEW CARD



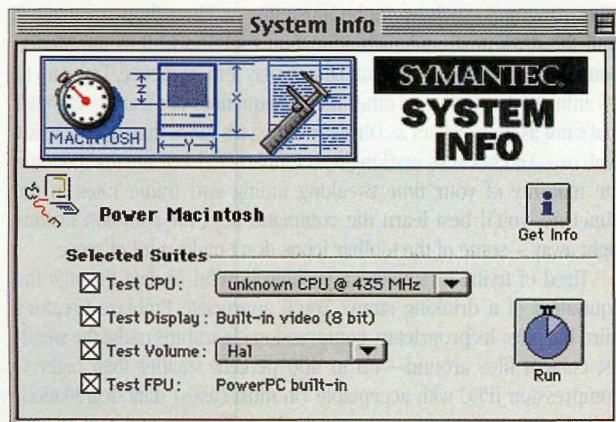
**Step One:** You'll need to open your Mac to insert the new processor. Don't forget to ground yourself.



**Step Two:** Just pull on the old card to remove it.



**Step Three:** Plug the new card into the empty processor slot. Press the motherboard reset button (inset) to make sure startup goes well. You're ready to rock. Just close the case first.



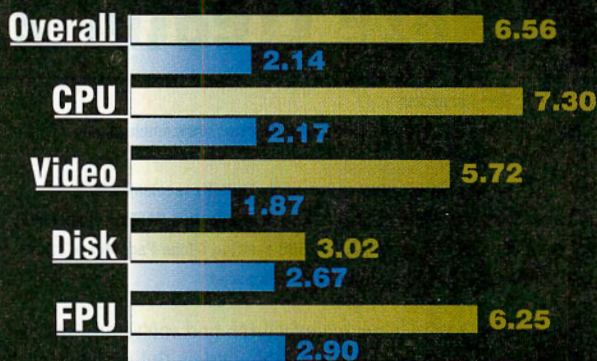
**SYSTEM INFO DOESN'T KNOW** quite what to make of the processor upgrade, but it knows that something fast is there.

MAXpower PRO+

Dual 120MHz 604e for 7600/120

## NORTON UTILITIES SYSTEM INFO

The higher the number, the better the performance.



The 9600/180MP, however, didn't benefit nearly as much from the upgrade. The overall benchmark score showed a 43 percent increase in speed, and this was centered in CPU and FPU functions. Disk speed and video speed hardly varied. We ran two Adobe Photoshop tests to check the dual 604e chips against the MAXpower PRO+'s single beefy processor. (Photoshop can take advantage of multiple processors to provide higher speed.) The result? A split, with the dual-604e configuration winning one test and the MAXpower PRO+ configuration winning the other. (See the chart on page 54 for details.) With the MAXpower PRO+ installed, the speed increase was minimal, so it was difficult to feel any difference when using the Mac in day-to-day work.

The card itself comes with several DIP (direct inline processor) switches that you can use to adjust the Mac's system bus. The factory-standard is 44.5MHz, but you can slow it to 41MHz or speed it to 48.5MHz. Why not leave it at the fastest possible speed? Some Macs can't take the faster pace, so the MAXpower PRO+ allows for lower bus speeds, should this be a problem. We ran the card at its highest bus-speed setting in both Macs with no problem. Also included with the MAXpower PRO+ is a CD-ROM with MicroFrontier's Color It! and the DOS version of Connectix Virtual PC. Virtual PC, in particular, should run nicely with all that backside cache available from the upgrade card.

Apple provided upgradable processors in newer Power Macs for a reason: to allow users to make their computers last longer. The MAXpower PRO+ fulfills this promise for the last generation of Macs. The card is easy to install, it works reliably, and it makes the machines run faster. It's this last point, though, that determines whether the card is worth the hefty price tag. For relatively high-end Macs (those with 180MHz or faster 604e processors), probably not. For older, slower Macs (those with 150MHz or slower 604 processors), especially those that have been decked out with lots of RAM, a couple of hard drives, and a big Level 2 cache card, the MAXpower PRO+ may be a great way to get cutting-edge speed. Be aware that the card has known problems with three Power Computing systems: the PowerCenter, the PowerCenter Pro, and the PowerTower. Newer Technology has corrected the problems, but if you are buying a card for one of these machines before January 1998, order it directly from Newer, and specify the type of machine. —David Reynolds



**GOOD NEWS:** Works with few compatibility problems.

Easy installation. Tremendous speedup for older Macs.

Spiffy off-brown color of circuit board.

**BAD NEWS:** Not much help for higher-end Macs. High price.





# reviews

## Emblaze Creator 2.5

**COMPANY:** Geo Publishing

**CONTACT:** 888-436-4999 or 602-902-5913, <http://www.emblaze.com>

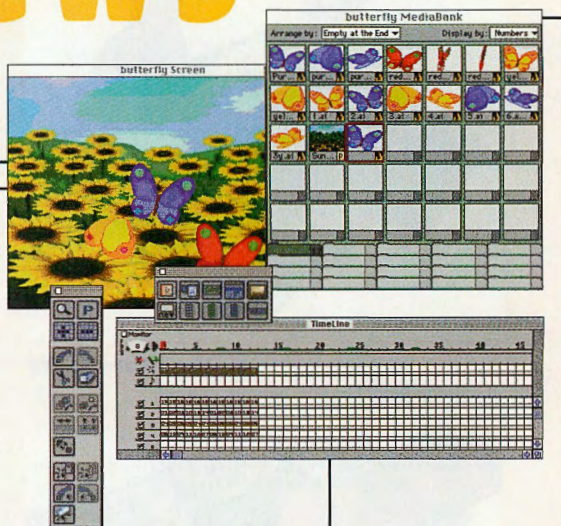
**PRICE:** \$995 (street)

**REQUIREMENTS:** 80MHz or faster PowerPC (160MHz recommended), System 7.5 or later, 16MB of RAM (32MB of application RAM recommended), 10MB of free hard disk space, 800-x-600 monitor, Adobe PageMill or other Web publishing program, Java-compatible browser

Imagine this: You're a car manufacturer, and you've just designed the hottest sport utility vehicle on the market. But there's a catch: The dealer has to supply the transmission. Worse yet, you can't collect any cash on a sale until the clutch is installed—by the owner.

If the car industry worked like that, we'd still have saddle sores. But that's exactly the kind of situation that confronts Webmasters. In order to give visitors a cool multimedia ride, Web authors must make sure their service providers have the necessary server apps and that surfers have downloaded their chosen audio and video player plug-ins.

Emblaze Creator 2.5 provides an end run around the whole plug-in issue. It's a well-thought-out, full-fledged Web interactive multimedia



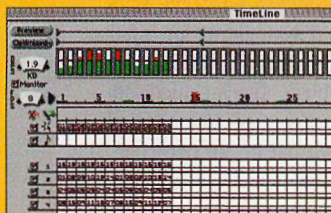
PROJECTS PLAY BACK in this window.

USE THE FRAME-BASED TIMELINE to see the timing of each clip. From here, add media in new layers, cut and paste sequences of frames, and monitor the bandwidth a project needs to play successfully at the frame rate of your choice.

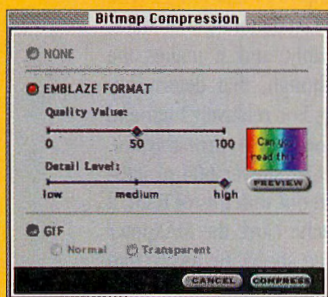
STASH MEDIA in Emblaze Creator's MediaBank; any resemblance to Director's Cast window is purely coincidental.

## Squeeze Play

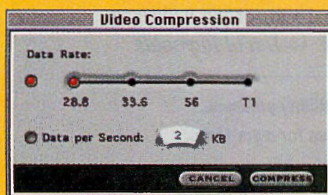
Battling narrow bandwidth can be a dirty job. But somebody's got to do it. Check out these Emblaze Creator tools for smashing bottlenecks and liberating flowthrough.



IN THE TIMELINE, you can see a graphic representation of the data flowthrough in your project. If you see red, it's time to tweak—or choose Optimize from the pop-up menu to let the program do it for you.



FROM THE MEDIABANK, select clips for Emblaze compression. This looks like a JPEG compression window, but don't be fooled: The resultant file is smaller.



COMPRESSING VIDEO is a no-brainer. Just pick the lowest common denominator of bandwidth, click Compress, and kick back. Compression is fairly quick, too.

construction set with this salient feature: The first time surfers log on to your Emblaze-authored site, they get a small (50KB) Java applet that handles all the multimedia thrown at them. No plug-ins, no server apps, minimal hassle for visitors. Emblaze Creator files, which are attached to HTML files you pop into Web authoring software such as Adobe PageMill or Claris HomePage, play back via any Java-capable browser on any platform.

Emblaze Creator's second advantage—an important one for authors who have invested a lot of time in learning multimedia techniques with the leading authoring app, Macromedia Director—is that it has an extraordinarily familiar look and feel. The program's sequencer (TimeLine) and object library (MediaBank) bear an uncanny resemblance to Director's Score and Cast windows. (Of course, if you hate Director, this may not be an advantage at all.) Emblaze Creator works like Director, too, and can output projects just as complex. To make a multimedia sequence, import media from other programs, such as Adobe Illustrator or Photoshop (or make it with the draw, text, and path-animation tools), add it to the MediaBank, and drag it onto the TimeLine to play it in sequence. Layer up to 15 animations, videos, or other media sequences per frame. Although that's not as many layers as Director offers, it's more than adequate for Web use. And because working with Emblaze Creator means spending the majority of your time tweaking timing and frame rates in the TimeLine, you'd best learn the command keys for common actions right away—some of the toolbar icons don't make a lot of sense.

Tired of trying to squeeze a gushing hoseful of data through the equivalent of a drinking straw? You'll appreciate Emblaze Creator's third big plus: Its proprietary compression algorithms make the smallest content files around—up to 400 percent smaller than highest-compression JPEG with acceptable (in most cases) data degradation. Unlike other authoring programs, Emblaze Creator makes it easy to track bandwidth needs. The TimeLine contains a Bandwidth/Data Stream monitor that shows the simulated feed of every frame; if the



## Audio and Video on Tap

### Emblaze Audio and Emblaze Video

**PRICE:** \$295 each (street)

**REQUIREMENTS:** Audio: Any Mac capable of running System 7.1 or later, 8MB of RAM, 5MB of free hard disk space; Video: 80MHz or faster PowerPC, System 7.1 or later, 16MB of RAM, 5MB of free hard disk space, monitor with thousands of colors, 28.8Kbps or faster Internet connection

Geo Publishing offers two stand-alone products, Emblaze Audio and Emblaze Video, that will handle streaming audio and video for you in the same plug-in-free style as Emblaze Creator, each for less than one-third of Creator's price.

Install either product, and all you do is drag and drop video or audio files onto the appropriate app. As in Emblaze Creator, multimedia is converted to a proprietary, highly compressed format with an attached Java applet and HTML, accessible by any Java-enabled browser. The fact that surfers don't have to find and download a plug-in, and you don't have to invest \$1,000 or more in expensive server software, gives these products a major leg up on their main competitors, Vivo Software's VivoActive and Progressive Networks' RealAudio and RealVideo.

Emblaze Video handles QuickTime and AVI files; video duration is unlimited. Emblaze Audio converts SND, AIFF, or WAV files. Sixteen-bit audio streams nicely, even at 14.4Kbps.

Emblaze Creator has all the capabilities of Emblaze Audio and Emblaze Video, so you don't need all three.

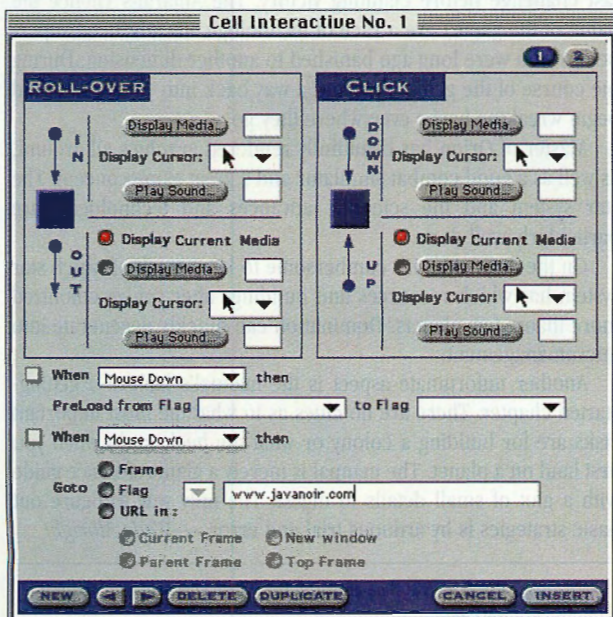


**GOOD NEWS:** Includes all that's needed for streaming audio. Easy and effective compression tools.

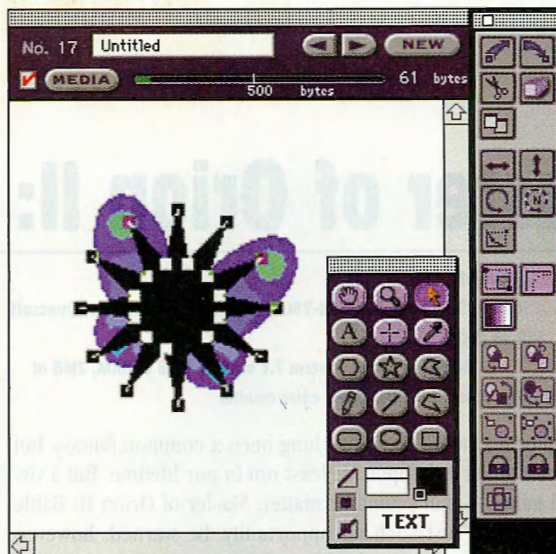
**BAD NEWS:** Duplicates what is already in Emblaze Creator. Pricey.

level hits the red zone, you know immediately that there's a problem. Automatic optimization takes care of this, or you can manually tweak the compression, reduce the number of layers, change the window size, or take some other action to maintain your chosen frame rate.

Media easily prototypes at various compression ratios, letting you see what works at squirt rates from 28.8Kbps to T1/intranet. Compression can be set for individual clips or the whole project. Geo Publishing claims that, depending on the size and complexity of a



**EMBLAZE CREATOR OFFERS TWO LEVELS** of interactivity authoring: Java scripting, and simple options you can choose from this dialog box.



**EMBLAZE CREATOR'S BASIC DRAW TOOLS** make quick vector Web graphics.

video, speeds of up to 12 to 15 frames per second (fps) can be achieved (30 fps at intranet speeds). The test file we created, uploaded, and accessed at 28.8Kbps ran closer to 10 fps—still pretty decent for Web playback.

Emblaze Creator is 100 percent JavaScript compatible and ships with libraries of 120 custom commands handling specific operations and calls. These are channeled from the Emblaze Creator project files through the Java applet to the browser. You need to be Java savvy to create projects with the conditionals (if...then statements) that advanced interactivity requires or that make calls to other Java applets. However, you don't have to be up on your Java to create basic interactivity. The Frame Interactive dialog box, which can contain settings for every frame in the project, lets you set loop, pause, and branch behaviors, create rollover buttons, capture mouse clicks, go to URLs, and set the anti-aliasing level on the fly.

You get wide media-file compatibility, too—BMP, PICT, JPEG, GIF, Illustrator, SND, AIFF, WAV, QuickTime, and AVI are directly supported (unfortunately, Emblaze Creator can't import Director files). There's no limit to video and audio file size or play duration. The audio compressor guarantees 16-bit audio for 14.4Kbps and faster modems. Anti-aliasing for images comes in two weights: light for animation, heavy for still images.

As well designed as Emblaze Creator is, it doesn't offer everything we'd like to have. Mainly, the program lacks alternative views of a project's interactive structure—something along the lines of the flow chart representation that mFactory's mTropolis provides. (Director users have been doing without that for years, so here's an area where Emblaze Creator can usefully individuate.) It also doesn't offer the performance of Director; further code optimization is needed to make most operations snappier, especially launching and file loading. A few nagging instabilities in this version will no doubt be fixed with updates by the time you read this.

Emblaze Creator may not have all of Director's bells and whistles, but its superior compression algorithms, bandwidth optimization tools, and freedom from plug-ins make it the better choice for Web multimedia. —Steven Anzovin



**GOOD NEWS:** Plug-in-free. Ultratight compression. Excellent bandwidth optimization tools. Looks just like Director.

**BAD NEWS:** Pricey. A little slow. Needs a bug-fix revision. Looks just like Director.





# reviews

## Master of Orion II: Battle at Antares

**COMPANY:** MacSoft

**CONTACT:** 800-229-2714 or 612-509-7600, <http://www.wizworks.com/macsoft>

**PRICE:** \$69.99 (SRP)

**REQUIREMENTS:** 68040 or faster, System 7.1 or later, 8MB of RAM, 7MB of free hard disk space, CD-ROM drive, color monitor

Conquering the universe has long been a common fantasy, but it's not going to happen. At least not in our lifetime. But a virtual galaxy—that's another matter. Master of Orion II: Battle at Antares offers just such an opportunity. Be warned, however, that dominating the stars to build a galactic empire requires managing everything from scientific research to farming and mining.

There are many different races you can choose for this quest—even the lowly humans. Each race has its own strengths and shortcomings. If none of the offered races suit you, customize a new race by creating a profile and sets of advantages and disadvantages.

Master of Orion's virtual galaxy is huge, with many star systems to explore. Each system yields different types of planets. Some are

very hospitable to life but lack mineral resources, others are mineral rich but toxic and void of atmosphere. You must decide which ones are worth colonizing in order to maximize the return on your investment. Some planets need the benefit of highly advanced technological breakthroughs before they reach their full potential.

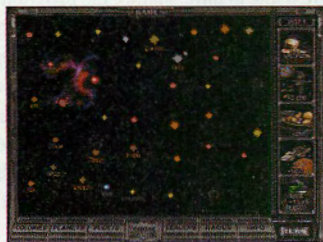
Your scientists develop many different types of

technology. Some enhance colonies, some help colonists travel faster and more efficiently, and, of course, many are militaristic in nature, helping you to better defend against (or attack) your neighbors, who also are bent on dominating the galaxy. Be careful to balance a colony and its technical advancements with a strong space fleet.

For combat, Master of Orion offers two options: The computer can calculate the outcome of battles based on statistical analysis, or you can take control of your own destiny using a well-detailed combat scenario. Success in the latter case requires spending a lot of time designing and outfitting ships with various systems and weapons combinations. They are ultimately customizable, allowing for a wealth of combat strategies.



**CREATE SHIP DESIGNS** using myriad construction options for many different combat strategies.



**WITH ENOUGH AMBITION, skill, and luck, you might one day rule the vast expanse of the galaxy.**



**THE COLONY VIEW** allows you to manage resources and see a nice graphical representation of structures.

In addition to the take-the-galaxy-by-force approach is the option of building alliances with other races through diplomacy. Establish various agreements and treaties, which, of course, may or may not be honored by one or both parties. The malicious side of diplomacy is espionage. You can send spies to other races' home worlds to steal technology or sabotage colony operations. Spies also work within your own colonies, rooting out enemy spies who have been sent by the other races.

Once you have colonized a good portion of the galaxy (including the legendary star system of Orion) and have defeated your enemies, you might think you've got it made. Nope. There's one last challenge before claiming victory. The Antarans (hence the name of the game) are a race of technologically advanced superbeings who were long ago banished to another dimension. During the course of the game, they find a way back into your galaxy and begin wreaking havoc everywhere they go.

Master of Orion has beautifully rendered graphics all around, as well as a good combat simulator and a great game concept. The star system and the scientific advances and technologies are particularly well done.

On the downside, it's cumbersome to keep track of which star system has which resources and buildings after you've colonized more than a few planets. Domination can quickly degenerate into micromanagement.

Another unfortunate aspect is the manual's lack of a getting-started chapter. There are no clues as to what the most important tasks are for building a colony or what the heck to do when you first land on a planet. The manual is merely a giant reference guide with a glut of small details to digest. The only way to figure out basic strategies is by arduous trial and error. —Wade Albright



**GOOD NEWS:** Nice graphics. Great game concept. Very detailed universe.

**BAD NEWS:** Bogs down in micromanagement. Manual lacks a clear tutorial for beginning players.



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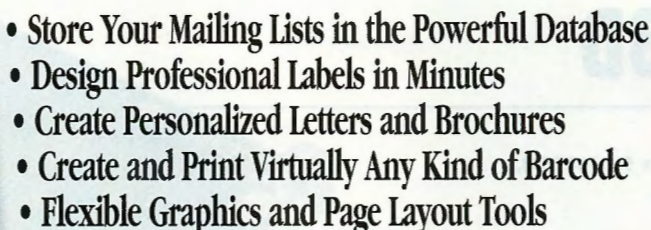
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President  
Master  
Minne

THE

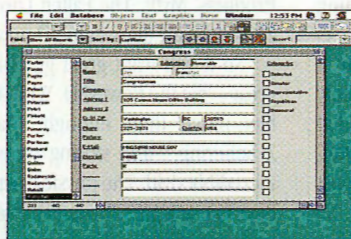
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  - Draw arcs
  - Rotate any object
  - Make two objects the same size
  - Flow text from one object to another
  - Adjust the space between characters
  - Adjust the space between lines
- 
- The screenshot shows the Microsoft Publisher interface with a newsletter template titled 'home gardener'. The template features a green header with the title, a large image of tulips, and several text blocks. Lines from the surrounding text point to various elements: the top header, the tulip image, the main text block, the bottom text block, the left sidebar, and the right sidebar. The interface includes a menu bar, a toolbar, and a status bar.

**\$24<sup>99</sup>**

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# reviews

## Power3D

**COMPANY:** TechWorks

**CONTACT:** 800-688-7466 or 512-794-8533,

<http://www.techworks.com>

**PRICE:** \$249.95 (SRP)

**REQUIREMENTS:** PowerPC, System 7.5.3 or later, one or more (empty)

PCI expansion slots, CD-ROM drive, 640-x-480 multisync color monitor



**THE POWER3D**  
graphics accelerator  
is absolutely astounding  
if all you do is play games.

**W**e bet you don't even know pixelated graphics are giving you Garbled Aesthetics Syndrome. Instead of just identifying the problem and laughing, we offer the magic elixir: TechWorks'

Power3D card. It not only serves up 45-megapixels-per-second-sustained polygon fill but also offers over 1-million-triangles-per-second throughput! Sigh. Sorting through 3D gobbledygook is enough to give even Einstein a Gouraud-shaded headache. Simply put, the Power3D is a PCI card that makes 3D games more beautiful, offering a faster frame rate boost than anything else currently on the market. It's based on 3Dfx's Voodoo chip and supports Rave as well as Glide APIs (application programming interfaces).



**LOOK AT HOW** the exploded bits are more spherical than square. This is a much more aesthetically pleasing way to die.

This matters for one simple reason: Multiplatform game developers don't want to support every 3D API. Apple created QuickDraw 3D Rave to let game developers make 3D games for the Mac without worrying about which card users have, but Rave doesn't work on PCs. For vendors marketing cross-platform games, supporting Apple's API in addition to PC 3D APIs increases the time and effort it takes to get a game to market. They want a system that works on both platforms.

And they have one—Glide—thanks to the Power 3D. In addition to supporting Apple's Rave standard, TechWorks offers the MacGlide

API to access its card. Many games, such as Havoc from Reality Bytes, run only under Rave. Other games, MacSoft's Quake, for instance, have a 3D Rave version and a Glide version; they run on all cards. But then there are games, such as Bungie Software Products' Myth: The Fallen Lords, that support only Glide technology. The only card that offers 3D power to Havoc and Myth is the Power 3D.

So if you want great graphics for *all* your games—and they are great—get the Power3D. With 4MB of graphics memory, the Power3D has more than enough space for rendering, back-buffering, Z-buffering, and storing wads of textures. Onscreen graphics are incredibly vivid. The physical setup, however, is an inelegant beast: You have to use a pass-through cable to your monitor, which clutters up the back of your Mac. The pass-through cable goes from your Mac's original video out to the Power3D card in the PCI slot. Your monitor plugs into the Power3D card. It's ugly, but it works—as long as everything on the screen is 3D. The card doesn't allow 2D and 3D to run simultaneously. A VRML world embedded in a Web browser, for example, loses the 2D browser around it.

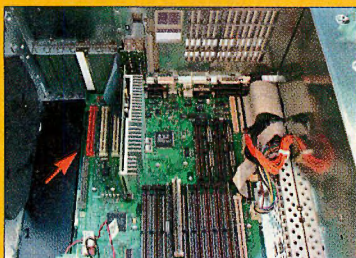
But for gamers, there really is no 3D choice. The Power3D card is the only way to go. But if you do anything that mixes 2D and 3D graphics, the Power3D is inadequate for the task. —Kathy Tafel



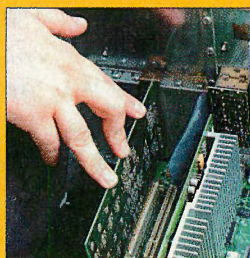
**GOOD NEWS:** Wicked fast 3D acceleration. Supports tons of games.

**BAD NEWS:** Pass-through cable may be too strange a concept for some. Can't mix 2D and 3D graphics.

### INSTALLING THE POWER3D



**STEP 1:** Get out your manual—you know, that book that came with your Mac—and follow the instructions telling you how to expose your PCI slots (highlighted here). Be sure to stay grounded.



**STEP 2:** Line up the card over a free slot, and push it firmly down. Don't angle it in; make sure everything is at a right angle.



**STEP 3:** The pass-through cable connects your normal monitor port to the Power3D. Plug your monitor directly into the 3D card.



# reviews

## LivePix 1.1

**COMPANY:** The LivePix Company

**CONTACT:** 800-727-1621 or 415-908-1067, <http://www.livepix.com>

**PRICE:** \$49 (SRP)

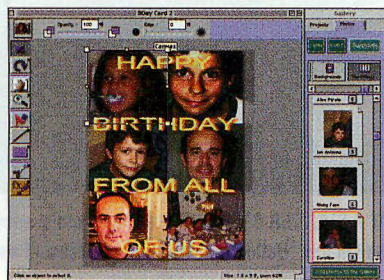
**REQUIREMENTS:** PowerPC, System 7.5.3 or later, 16MB of RAM with virtual memory turned on (24MB of RAM with virtual memory on recommended), 40MB of free hard disk space, 2X or faster CD-ROM drive, 640 x 480 or bigger monitor with 256 colors (800 x 600 with 16-bit color recommended)

Creating collages on the Mac is a fun way to use scanned or digitally captured photos and Photo CD images. Now the LivePix package makes it pretty easy. Starting with a library of more than 300 templates for backgrounds, props, and images, you can quickly assemble collages for greeting cards, presentations, announcements, and Web pages. Half an hour after opening the box, we had a collage.

The program has two modes: Organize, in which you click through tabbed albums, locating and organizing photos and templates; and Working, in which you build a project on a canvas. Start a collage either with a blank slate or by selecting one of the pre-made backgrounds that

come with the software. LivePix treats photos and text inserted onto this canvas as objects, so you can easily rotate, pan, skew, and scale them, layer by layer. Using Adobe Photoshop-like tools, you can also flip, cut out, distort, create shadows, and apply filters, as well as adjust color, brightness, and contrast levels using a preview dialog box that's arranged like a color wheel. Photos in the usual formats (TIFF, BMP, JPEG, PICT, and so on) automatically become FlashPix (FPix) documents inside LivePix for speedier data-bit handling, but will export back to other file formats.

LivePix is very easy to work with, especially compared with a program such as Photoshop, but sometimes you'll need excessive dexterity to select text lying on a photo, and occasional surprises will accompany your efforts to insert images. In one case, a photo turned red, and in another, the image flipped vertically. These are apparent glitches in the system, but the moral of the story is that templates sometimes give unexpected results—at least, perhaps, until you're familiar with them. And with LivePix's voracious system appetite, you'll probably need more RAM than what's advertised. A Power Mac 6400/180 603E with 48MB of RAM chugged and choked on some projects, especially when we had two windows open. But we're hooked. This program is more fun than late-night TV. —*Michael Miley*



**THE CANVAS** in the Working mode provides tools for assembling and manipulating a collage such as this birthday card.



**GOOD NEWS:** Easy to use. Good templates and photos. Gallery is well organized.

**BAD NEWS:** Produces some unexpected results. Selection tool is a bit touchy. Slower than expected.



## The Ultimate Add-on

**FREAKIN' AWESOME.** Pretty much sums up OneClick, the totally cool, [top-rated](#) shortcut software.

Now you could get OneClick for its easy-to-use [macro recorder](#) that lets you create button or [keyboard shortcuts](#) to automate frequent tasks.

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MacWEEK



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— MacUser Magazine

"One of the most valuable pieces of software I use."

— Guy Kawasaki





# reviews

## DC120 Zoom Digital Camera

**COMPANY:** Eastman Kodak

**CONTACT:** 888-375-6325 or 716-726-7260, <http://www.kodak.com>

**PRICE:** \$799 (SRP)

**REQUIREMENTS:** 68020 or faster, System 7.1 or later, 8MB of RAM (16MB recommended), 30MB of free hard disk space, CD-ROM drive, available serial port, color monitor (800 x 600 24-bit recommended)

A good consumer digital camera has to bridge the worlds of onscreen imaging (images for the Web) and quality output (images for printing). For that, a megapixel resolution is generally considered *de rigueur*. Kodak's Digital Science DC120 Zoom Digital Camera was the first digital camera in 1997 to break the megapixel barrier for less than \$1,000, doing so with an interpolation algorithm that brings its 850-x-984-pixel CCD up to 1,280 x 960, for a total of 1.2 million pixels. This high resolution, relatively reasonable price (Kodak recently dropped it \$200), and the camera's onslaught of features do the digital imaging trick.

Among the essentials the DC120 boasts are an autosensor flash with 13-foot range, an autofocus 3x zoom lens (38 to 114mm) with a macro setting for close-ups, 37mm threads for attaching accessory lenses (such as those available from Tiffen), and a 1.6-inch color LCD for review and preview (alongside an optical viewfinder). For storage, the camera offers a CompactFlash card slot accepting 2MB and 10MB cards—compatible via an adapter with a PCMCIA card reader—to add memory to the 2MB onboard. The camera requires four AA batteries, which can be standard 1.5V alkaline, 1.7V lithium, or 1.2V rechargeable NiCads. We spent a whole day shooting with the NiCads.

The horizontal box of the DC120 is fairly handy in the palm, though its nonstandard form may bother some people. Status Display indicators tell if a memory card is inserted, how many more pictures the camera can hold, and what charge is left in the batteries. The display also can be used to change the settings using Tab, Select, and Enter buttons. The controls are a bit tricky at first, but with them you can adjust the AutoFocus lens and set the Auto Exposure feature up and down four full stops, in 0.5 increments. The Manual Exposure range is from 1/500 to 16 seconds, and the camera has an aperture range of f/2.5 to f/16 in wide and f/3.8 to f/24 in telephoto mode. The Status Display can also change the Flash to Auto, Fill, or Off; use the Album feature for moving pictures among eight onboard storage albums; and determine the picture quality you want—Good (20), Better (10), Best (7), and Uncompressed (2).

Next to the Status Display is the LCD, for viewing photos after snapping the shot. The LCD also allows you to preview images



**THIS UNCOMPRESSED PHOTO** (the highest quality setting) was shot inside with no flash, in sufficient natural lighting. The skin tone and texture are very smooth.



**THE DIGITAL SCIENCE DC120 Zoom Digital Camera** delivers megaresolution at a minimal price.



**AT A SHUTTER SPEED OF 1/380**, light and shadow contrast is handled pretty well in this "Better" quality photo of Nicasio Reservoir in the late afternoon.

before capturing them (although using this feature shortens battery life) or to review them one, four, or nine at a time via the Play-Stop function. Any images can be selected and erased—a handy feature when you find an over- or underexposed photo. And the LCD's adjustable brightness makes the display useful even in daylight.

These are great features, but the DC120 is not without faults. The flash tends to blow out an image if you're not careful (filters are available), and a Kodak AC adapter and Kodak Picture Card seem nearly essential for everyday use—upping the cost some \$300 (yikes!).

These criticisms aside, it's a good camera that produces decent photos. The uncompressed images are the crispest, with the most detail, and although there's some softness in the compressed settings, the color quality remains good throughout. The camera comes with a serial cable for uploading pictures to your Mac, along with a Picture Transfer Application for saving them in PICT, TIFF, JPEG, or FlashPix format. It also comes with Kodak's PhotoEnhancer software, which lets you build a slide table of thumbnails and offers tools to adjust color, contrast, and brightness, or to flip, rotate, resize, and crop your photos. —Michael Miley



**GOOD NEWS:** 1.2 million-pixel resolution. Excellent color.

Handy design.

**BAD NEWS:** Kodak AC Adapter not included. Flash could use a filter. Cards are expensive.

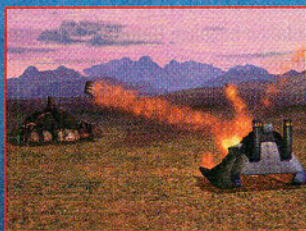


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# reviews

## 3D World 2.5

**COMPANY:** Microspot USA

**CONTACT:** 800-MACPLOT (622-7568) or 408-253-2000,

<http://www.microspot.com>

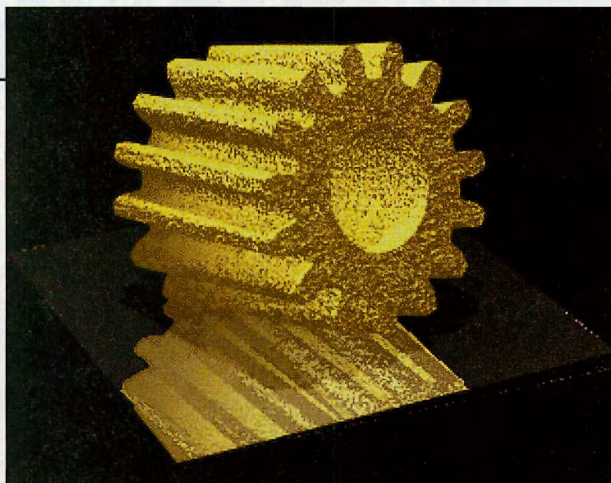
**PRICE:** \$149 (SRP)

**REQUIREMENTS:** PowerPC, System 7.1.2 or later, QuickDraw 3D 1.5, 16MB of RAM (recommended: 604e or faster, 32MB of RAM, Apple QuickDraw 3D accelerator card and plug-in renderer)

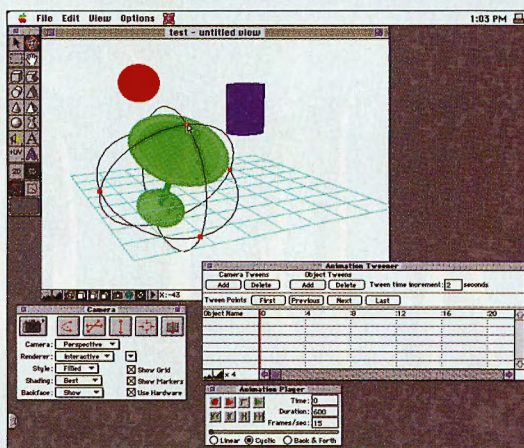
The trend in 3D modeling and animation packages these days is ease of use. Vertigo Technology and MetaCreations are among several 3D-product developers that are creating low-cost packages suitable for the 3D beginner or hobbyist. It's a daunting task, considering the inherently arcane and abstract nature of the medium. In 3D World 2.5, Microspot—a longtime player in the field—brings out a laymen 3D entry that makes things about as easy as they can be for users unaccustomed to working in 3D space.

The most important aspect of any beginner-level 3D program is the ease of object manipulation. Microspot uses the native QuickDraw 3D manipulator widgets Apple developed—which, inexplicably, almost no other program uses—for easy adjustment. They allow you to move, scale, and rotate an object by dragging a set of handles around its surface. Unfortunately, getting the right view of the object is not as intuitive. Controls for the placement and rotation of the camera are found on a Camera palette and are not directly related to the view.

In addition to the usual entourage of spheres, cubes, cylinders, cones, and other primitive shapes that come with every 3D program, 3D World can create more complex objects by lathing (spinning a surface around an axis) or extruding an outline (think of squeezing pasta from a shaped nozzle). In addition, the program can use the grayscale values of a PICT image as an elevation map, creating higher or lower areas depending on the brightness of each pixel (a useful tool for creating terrain), and contains a Mountain tool for



THE 3D WORLD PACKAGE supports QuickDraw 3D plug-in renderers. This image, rendered with the LightWorks SuperLite renderer, uses shadows, reflections, and anti-aliasing.



**OBJECT MANIPULATION IS EASY** with 3D World's QuickDraw 3D manipulation handles. Unfortunately, camera manipulation doesn't get the same treatment.

quickly creating mountain ranges.

Animation in 3D World is functional but limited. Keyframes can be added at any point along a simple timeline, and a VCR-like control panel allows you to play back the animation in near real time. Motion interpolation is linear, so you can't slow in and out of keyframes—eliminating most subtle or lifelike motions. This probably won't be a problem, however, for a dabbling 3D hobbyist. A few animation plug-ins add extra features, such as the capability to animate a texture across a surface or make simple spinning objects.

The program comes with a raft of plug-ins that range from the indispensable to the puzzling. The walkthrough plug-in, for instance, is very useful, providing easy navigation. Some plug-ins create automatic pie charts, terrains, gears, and even rain. But then there are the others. As its name implies, the Bomb plug-in blows up objects, but not in a way that creates a finished result. It separates objects, moves the pieces apart, and deletes the whole thing. The Earthquake plug-in simply shakes your camera and plays an earthquake noise, again producing no result.

As an entry-level animation program for illustration or flying logos, 3D World is probably not a good bet—you'll need something along the lines of MetaCreations Infini-D 4.0 or Ray Dream Studio 5.0. This package just isn't geared toward quality output. But for those merely dabbling with the third dimension, 3D World allows a quick-and-dirty entry to the complex and confusing 3D paradigm. —Raf Anzovin

### Power Plug-ins

With its stripped-down feature set, 3D World is aimed mostly at newbies. However, Microspot makes it appealing to more professional users by offering the 3D World Designer pack, a collection of plug-ins with advanced capabilities. It includes plug-ins for vertex editing (pulling polygons around by their corners), drawing rooms and walls (for fast VRML creation), real Boolean operations (chopping holes in objects), and photorealistic rendering (the LightWorks SuperLite renderer). These features won't turn 3D World 2.5 into an Electric Image Animation System, but they could make it a serious player in the low-end Web and graphics-creation fields. The combined price for both products is \$349.



**GOOD NEWS:** Optimized for QuickDraw 3D. Great object manipulation tools. Plug-in architecture.

**BAD NEWS:** Camera tools nonintuitive. Some plug-ins prove useless.



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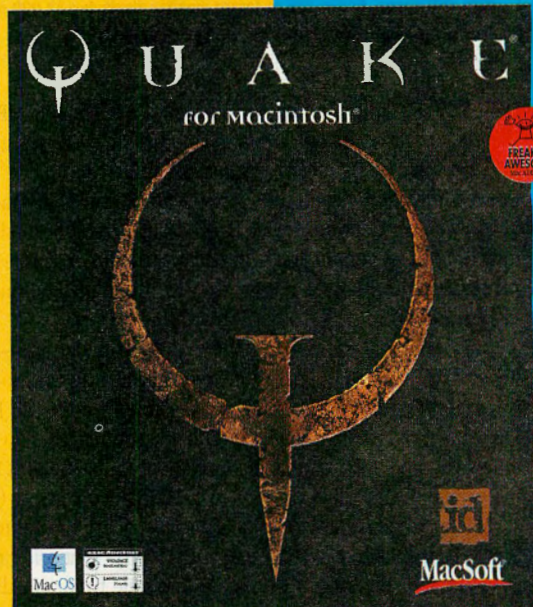


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# reviews

## MPEGCAM

**COMPANY:** Hitachi

**CONTACT:** 800-448-2244 or 770-279-5600, <http://www.hitachi.com>

**PRICE:** \$2,399.95 (plus \$299.95 for a Macintosh connection kit)

**REQUIREMENTS:** PowerPC, System 7.5 or later, 10MB of RAM, 10MB of free hard disk space, 640-x-480 or larger monitor displaying 32,000 or more colors, CD-ROM drive (4X or faster recommended)

**S**mall, slick, and utterly impractical, Hitachi's new MPEG gadget is part cool and part con. Named MPEGCAM, it's a palm-size portable video/audio recorder and JPEG still camera, capable of downloading files cleanly and easily to any Power Mac. On first sight, it's a wonderful device: a tiny, LCD-touting, swivel-headed, 6x zoom digital movie generator. Unfortunately, the camera's price is directly proportional to its sleek design (not its image quality) and sets you back close to three grand.

Now take a close look at what that three grand buys—a friend-impressing, one-pound steel box sputtering out 352-x-240-pixel-resolution movies at 30 frames per second or 704-x-480 JPEG stills. Plus, a complex, wire-intense, SCSI adapter kit (needed to attach the thing to a Mac) and a simple file-transfer program. Sounds fairly neat, but consider a possible alternative: a Hi-8 video camera (\$1,000 to \$1,200 for a consumer-level model), a video card for capture (\$300), and a megapixel digital still camera (\$1,000). That setup is going to chew up and spit out the MPEGCAM like stale fruit-striped gum, and leave you enough money for a first-rate video-editing program.

The sheer gadgetyness of the MPEGCAM counts for a lot, however, and on top of that, the camera even offers a few pragmatic perks. For one, it's a single item. The aforementioned package will have you bouncing back and forth between a still and video camera. Not so

with the MPEGCAM. And with the MPEGCAM, videos and JPEGs can be downloaded to *any* Power Mac, not just one with a video card. For a PC user, the MPEGCAM is a significantly greater value—after all, it will download files just like, well...a Mac. And even though Hi-8 is night and day better than the video quality of the MPEGCAM, and the JPEG images also are just ho-hum, anyone with three grand to burn (or who can get their employer to foot the bill) will find the camera thoroughly addictive. It's an extremely convenient way to gather images.

Using the MPEGCAM is elementary. The LCD monitor shows what's being filmed or shot, so just flip the power switch to camera mode and press Record. Switching to still JPEG mode just requires

pressing the record mode button (a photo icon, as opposed to the usual movie camera icon, appears in the LCD). And an additional option allows a 10-second audio track to be recorded along with each still picture. To quickly review what you've just filmed, switch the power lever to the play mode.



**THE FIRST MPEG-1 DIGITAL CAMERA** provides a decadent way to get movies, sounds, and stills into your Mac.

The camera is especially friendly to the idea of filming yourself. The head swivels around 180 degrees, allowing the filmed subject to see the LCD. The MPEGCAM comes with a stand and a remote control, so just position it where you want and become both director and star.

The camera can hold about 20 minutes of video with accompanying

audio or 3,000 JPEG stills or 1,000 JPEG stills with audio. Storage is handled in the form of a 260MB PC card, and additional cards can be purchased for around \$600. These cards also go into the PCMCIA slot in most PowerBooks for easy download—saving the \$300 cost of the SCSI adapter. For power, the camera comes with two rechargeable lithium ion batteries, good for about 40 minutes each. Recharging each of these takes a little more than an hour and a half.

Because the camera's native file formats are MPEG and JPEG, they are perfectly suited for the Mac and, for that matter, for loading to the Web. QuickTime 2.5 and the QuickTime MPEG extension (both offered as free downloads from Apple) allow QuickTime's movie player to play MPEG films. JPEG files can be opened in any picture application, including Adobe Photoshop and PhotoDeluxe, or slapped into HTML for viewing on any Web browser. The MPEG files also load to video workshop programs, such as Adobe Premiere, for further editing.

The ease of use and the raw neatness of the camera will draw in gadget hounds, but the price and image quality will no doubt turn most away. Compounding this problem, the MPEGCAM's autofocus and adjustment features cannot be overridden to increase the camera's performance. When shooting on a sunny day, the camera's recordings can get almost totally blown out, and there is not a thing a cameraman can do about it. But nevertheless, leave one laying around here and you might not get it back. —Robert Capps



**IN PERFECT CONDITIONS,** the MPEGCAM produces passable JPEG images.

**MPEGCAM**



**35MM**



**THE INABILITY TO ADJUST** anything on the MPEGCAM leaves it open for quite a wallop by regular film.

**GOOD NEWS:** Easy to record and download images and sound.

MPEG-native format can be viewed with QuickTime's movie player. Looks impressive.

**BAD NEWS:** Crazy expensive. Ho-hum image quality. SCSI adapter for the Mac sold separately.





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# reviews

## Font Reserve 1.0.2

**COMPANY:** DiamondSoft

**CONTACT:** 415-381-3303, <http://www.fontreserve.com>

**PRICE:** \$119.95 (SRP)

**REQUIREMENTS:** System 7.5 or later, 4MB of RAM

**F**onts come in all manner of shapes and sizes and names. Call them bitmap fonts, PostScript fonts, TrueType fonts, multiple master fonts (not to mention "instances"), Type 1 fonts, Type 3 fonts, printer fonts, outline fonts, screen fonts—take a deep breath. To manage them, we get programs such as Adobe ATM Deluxe, Alsoft MasterJuggler, and Symantec Suitcase, but they don't offer real organization.

Except, that is, for Font Reserve. Once installed, Font Reserve gathers all your fonts and deposits every last one of them in a hidden file called a "vault." In the process, Font Reserve weeds out duplicates (Do you really need four versions of Helvetica?), checks for missing components (PostScript fonts without the printer font, for example), and sorts them all neatly. To see what's in there, open the Font Reserve Browser application. The Browser can open fonts (make them available to your programs), close them, find them, sort them in any number of ways, and even display fully formatted font sample screens. You can't print the samples, but version 1.1 (due out by the time you read



**THE BROWSER PROGRAM** displays samples of your fonts—but the samples can't be printed.

this) should fix that.

Font Reserve is great but not perfect. It runs as a "faceless," or background, applica-

tion, but it sucks up 4MB of RAM (more if you have a really large font library). That's in addition to the memory which the Browser program uses. It's also rather slow to open a font—ATM Deluxe, for example, does it much, much faster. ATM Deluxe also has the ability to automatically activate closed fonts when you open an application or document that requires them. Font Reserve gives you a QuarkXPress XTension (add-on) to open needed fonts when a QuarkXPress document opens, but DiamondSoft is still working on plug-ins for such programs as Adobe Illustrator and PageMaker. —Gene Steinberg



**GOOD NEWS:** Cleans up your font mess by putting all fonts in one convenient folder. Reliable performance.

**BAD NEWS:** Requires 4MB of RAM all to itself. Cannot print font samples. Slightly poky at adding and opening fonts.



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**CONTACT:** 800-732-8881 or 408-761-6200, <http://www.aladdinsys.com>

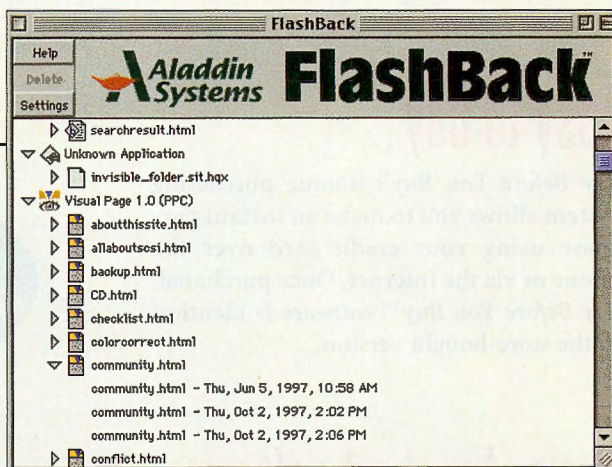
**PRICE:** \$29.95 (SRP)

**REQUIREMENTS:** System 7 or later (with the Macintosh Drag and Drop extension), 2MB of RAM

**T**here is something to be said for applications that focus on one thing and do it well. FlashBack is just this kind of application. It monitors whichever files you specify and keeps track of every version. When you decide you would like (or need) an earlier incarnation of a document, just double-click on it in FlashBack's window, and there it is. This tool is great for people such as grant writers and Webmasters, who work with files that can't be replaced if lost.

At first FlashBack seems like a nice-to-have-someday kind of tool, but it almost immediately turns into something a little more immediate. While working on some Web site files (which, in the interest of this review, FlashBack was set to watch), we opened an existing Web page to use as a template for a new Web page. Almost instinctively, we saved changes (rather than using the Save As... command) and lost the original document. Or at least that's what would have happened without FlashBack. Instead, under FlashBack's watchful eye, the previous version of the document was recovered without incident.

FlashBack (which takes only 640K of RAM) is a breeze to set up. Just install and launch the application, then drag any files that you want watched to its open window. FlashBack groups the files by application and keeps track of previously saved versions. To



**FLASHBACK'S INTERFACE** is easy to use; it organizes documents by creator application and then alphabetically. Notice the Unknown Application entry for a BinHexed file.

access one of these former renditions, click on the reveal triangle next to the document's name, and all the saved precursors show themselves. Dragging a selected version into a Finder window (including the Desktop) creates that version, and double-clicking a selected version opens it using the correct application. Pretty nifty. —David Reynolds



**GOOD NEWS:** It does what it says, and it does it well. Small memory footprint. Great price.

**BAD NEWS:** No easy way to provide constant protection for all documents. No way to create sets of watched applications.



# reviews



reviews

## Worms

**COMPANY:** Team 17 Software

**CONTACT:** +44-1924-271637 (England), <http://www.team17.com>

**PRICE:** \$48 (U.S. SRP)

**REQUIREMENTS:** 68020 or faster, System 7.1.2 or later, 8MB of RAM (16MB recommended for network play), CD-ROM drive



**CHUNKY GRAPHICS DON'T DETRACT** from Worms' fun gameplay.

other when this happens, a nasty chain reaction can occur. The game is over when one team's

**W**orms is a 2D, strategy combat game in which you try to lead your team of four worms to victory in a melee of small arms combat against up to 15 opponents. You can play either over a network or by taking turns on the same computer.

The game begins with worms from all teams randomly placed on a cartoonlike landscape. There are literally thousands of different landscapes, and you can keep requesting new scenes until you find one that satisfies your tastes.

Each player takes turns attacking the other teams' worms. You have a plethora of weapons from which to choose, as well as various tools for navigating the landscape. One particularly creative weapon is a sheep. You let it loose to run at your enemies, and it detonates, causing a fiery explosion.

Worms take damage from attacks until they self-destruct in one final blowup. If another worm is too poor exploding sap, it is damaged in the blast. If several weakened worms are near each

worms are the only ones left standing.

Although gameplay is excellent, Worms suffers from a nonintuitive interface—there's a complete lack of menus—and chunky graphics. Network setup is very convoluted and not too pretty; you must launch the game and quickly hold down L and N to start it, and when you reach the setup screen, everyone on the network can control the cursor simultaneously! This makes setting up the game quite confusing.

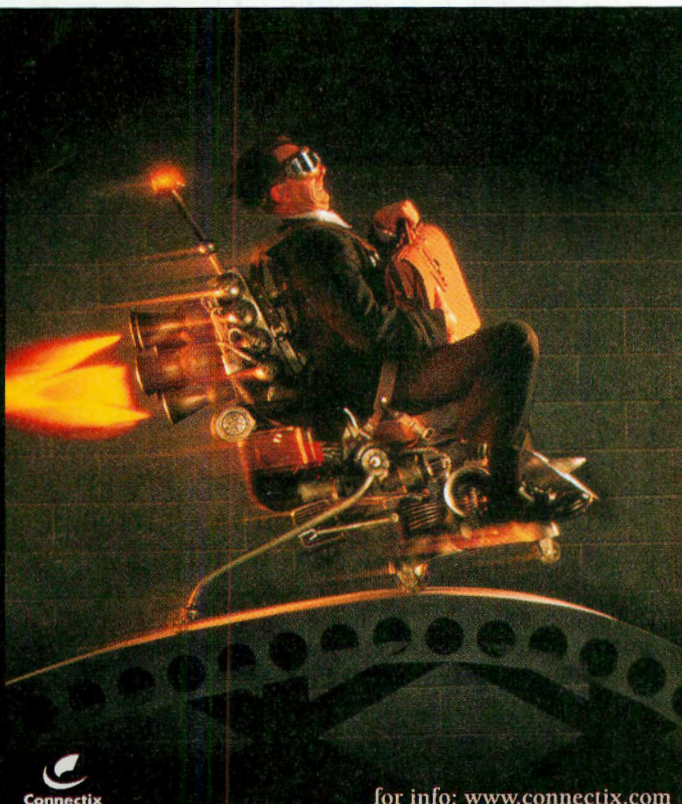
Despite these problems, once you've got the game up and running, it's lots of fun to kill each other's worms in all sorts of mean and nasty ways—just the thing to alleviate those long hours of boredom at work! —*Wade Albright*



**GOOD NEWS:** Great game play. Runs well on older machines.

Supports network play.

**BAD NEWS:** Network play is difficult to set up. Interface is a direct port of the console version.



for info: [www.connectix.com](http://www.connectix.com)

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# reviews

## Vertigo 3D HotTEXT

**COMPANY:** Vertigo Technology

**CONTACT:** 888-4-VERTIGO (483-7844) or 604-684-2113,

<http://www.vertigo3d.com>

**PRICE:** \$199.95

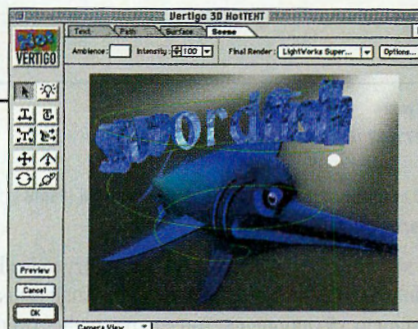
**REQUIREMENTS:** Power Mac (604 processor recommended), System 7.5 or later, CD-ROM drive, QuickDraw 3D 1.5.1 or later, Adobe Photoshop 3.0.5 or later (24MB or more of allocated RAM recommended), Adobe Type Manager 4 or later

**Y**ou can barely glance at the Web without 3D jumping in your face. In terms of design, this excess of dimensionality is not necessarily a good thing. But while the fashion lasts, artists need easy-to-use 3D tools. Vertigo, whose mission is to bring 3D to the masses, is right on time with 3D HotTEXT, a \$199 Photoshop plug-in for creating, texturing, lighting, and rendering extruded text.

Vertigo 3D HotTEXT installs in the same way as a Photoshop filter. To run the program, just open an Adobe Photoshop file and launch 3D HotTEXT. You'll see the current Photoshop picture overlaid with a perspective grid and sample 3D text on a straight path. Buttons along the side allow 3D spatial manipulations, such as dragging and resizing text, as well as moving the viewpoint. The first of four tabs along the top contains options for typing text along a spline path; choose from a selection of ready-made paths, or draw one with Adobe Illustrator-type tools. All TrueType fonts are welcome, Type 1 fonts work fine under ATM 4 or later, or you can use the font converter included with 3D HotTEXT.

The surface tab provides access to coloring tools and the program's library of some 1,500 textures. Also, any PICT image can be imported as a texture. Unfortunately, only the names of textures—not the textures themselves—can be seen while browsing, which is a real inconvenience when you have, say, 200 water textures to wade through. Different colors can be applied to the front and sides of a text string, but you cannot apply more than one texture to a string.

Vertigo is making progress in the continuing struggle to make 3D



**MAKE SWIRLING UNDERWATER TEXT with a helical path and a water texture.**

interfaces more usable for the topologically challenged. It offers more and better controls for moving text around in 3D space and for pointing the camera (to get just the right view) than it did in Dizzy, the company's first 3D plug-in. The preset paths Vertigo includes with the program are safe ground. But when drawing new paths, it's still far too easy to tie text into a Gordian knot, which can't be untangled without resetting to defaults.

All 3D programs make unreasonable demands on your system, and 3D HotTEXT is no exception. You must install QuickDraw 3D 1.5.1 or later, which can eat up some 8MB of RAM all by itself. Add to that the minimum 24MB of application RAM for efficiently running Photoshop 3.0.5 or 4 with 3D HotTEXT installed, plus around 12MB for Mac OS 8, and you've got a 3D-text RAM habit of around 44MB. Plus, you'll want a 604-based machine running at 150MHz or faster for adequate performance.

Vertigo 3D HotTEXT doesn't do anything that you can't do with any good general-purpose 3D program, such as Ray Dream Designer or Macromedia Extreme 3D—in fact, it does quite a bit less. But if Photoshop is where you live, and real 3D gives you the heebie-jeebies, you'll appreciate the one-stop convenience and slick results of 3D HotTEXT. —*Steve Anzovin*



**GOOD NEWS:** Good controls. Great results.

**BAD NEWS:** Heavy RAM requirements. Custom paths are tricky. Expensive for a plug-in.

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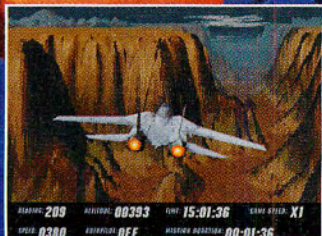


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is nothing...  
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# cd-roms

STAR FESTIVAL ■ 3D ATLAS 98 ■ COMPLETE NATIONAL GEOGRAPHIC ■ UFOS: JUST THE FACTS ■ EARTHSCAPE: ENDANGERED ECOSYSTEMS

**S**heer information is the commodity this month, and have we got it by the truckload. Scour the world, see rare sites such as bald eagles and UFOs. Learn about Japan. Heck, we've even got

the last 108 years of *National Geographic* magazine—every single issue. Just hope your eyes hold out; not everything's going to be easy on them. —Joe Mahr

## Star Festival 1.0

**COMPANY:** Botticelli Interactive

**CONTACT:** 408-227-1645,  
<http://www.botticelli.com>

**PRICE:** \$69.95 (SRP)

**REQUIREMENTS:** 68040 or faster,  
System 7.1 or later, 16MB of RAM, 4X CD-ROM drive



THIS VIEW OF JAPAN—sans boring historian—outspans that of the usual CD charlatans.

**P**ick up the electronic diary of a Japanese American professor and check out his notes and pictures to learn about the culture of Japan. Yeah, yeah, it sounds as enticing as salmonella sushi. But, for this disc, the gimmick works.

The disc chronicles MIT professor Shigeru Miyagawa's journey to his homeland, which his family left after World War II. He takes along a prototype diary to record videos, sounds, and notes from visits to such places as his old house and a liquor store. Then, during a big street party called the Star Festival, he accidentally drops the diary on the sidewalk. Some no-good voyeur—you—peeps into the intimacies of his life.

Granted, you won't get the complete view a documentary might provide. But, thanks to a smorgasbord of multimedia, well-written notes, and a great hyperlinked index, you're getting a good view of Japan through the eyes of a one-time resident.

## The Last Words:

**Mark:** It's an interesting concept—rather than dropping information in your lap and hoping you'll be interested enough to look at it, Star Festival makes you seek it out in a kind of interactive scavenger hunt.

**Judy:** I know Mark really liked the nonlinear organization—it drove me a little nuts. A terrific concept; who isn't intrigued with the idea of sifting through a happened-across PDA/journal. It's like a time capsule.

**Joe:** When I heard the concept, and saw the promotional material hyping that the disc was narrated by *Star Trek's* Mr. Sulu (George Takei), I thought this would be pretty lame. But I stand corrected. Beam me up.

## 3D Atlas 98

**COMPANY:** Creative Wonders/ABC  
**CONTACT:** 800-KID-XPRT or 415-482-2400, <http://www.creativewonders.com>

**PRICE:** \$29.95 (SRP)

**REQUIREMENTS:** 68040 or faster,  
System 7.5 or later, 4MB of RAM, 2X CD-ROM drive



View politically-correct-yet-compelling movies about a dozen earth-related topics such as weather patterns and population growth. Or hop on the Internet to download the latest info on Indonesia.

Worldly travelers may find the click-and-drag navigation system tiresome, but it's better than bumbling through the bumpy back roads of most CD interfaces, and much prettier.

## The Last Words:

**Mark:** The sheer quantity of stats and charting formats, coupled with the variety of map display options, make this a compelling research tool.

**Judy:** The content—geographic, economic, environmental—linked to the Web sets this disc a world apart from its competition.

**Joe:** The zippy interface left me as giddy as a bookworm while comparing the exports of Zaire with Zimbabwe. Now I'd like to get my hands on the \$5 map addition.

**G**ander at the facts and maps that make up the globe in the latest version of the complete and pretty darn snazzy Atlas CD.

Twirl the 3D atlas around to pick a favorite nation. Pull up info on its population, exports, even the number of pigs and goats. Or go to a special stat section to compare all sorts of things, such as which country has the highest per capita sheep population (New Zealand).

But there's much more than numbers.



FUNKY FACTS put this disc on top of the world.



## The Complete National Geographic

**COMPANY:** National Geographic Interactive/Mindscape  
**CONTACT:** 800-234-3088 or 415-897-9900, <http://www.mindscape.com>  
**PRICE:** \$199.99 (street)  
**REQUIREMENTS:** 33MHz 68030 or faster, System 7.5 or later, 8MB of RAM, 10MB of free hard disk space, 2X CD-ROM drive



So, for two Ben Franklins, you get access to every page of every *National Geo*, complete with a passable search engine. But to read it, you're going to have to work those peepers.

The total package—188,500 pages wrapped

in 30 chronological CDs—totals 300 gigabytes for the *National Geographic* buff.

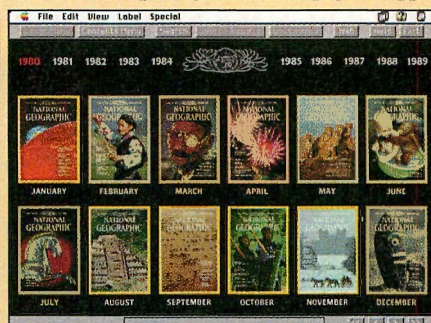
### The Last Words:

**Mark:** Whether onscreen or in printout form, the text is virtually unreadable. The result may be useful to archivists and researchers, but as an educational tool, it's no substitute for a library card.

**Judy:** Despite an expansive collection of information, Web access, and the basic zoom-in, zoom-out features, the disc is difficult to maneuver.

**Joe:** So what's the jump between 40 visually sharp CDs instead of 30 subpar ones? Give the folks at *National Geo* a pat on the back for the effort, but don't give them your Visa number until they make it readable.

**T**he makers of this disc meticulously compiled 108 years of *National Geographic* magazines, sometimes combing garage sales and used-book stores to find them. They then scanned 2,200 pounds of material to make 30 searchable CDs. But apparently they forgot—or couldn't figure out how—to turn up the scanner resolution.



THE WORLD AT YOUR FINGERTIPS—as long as you don't mind straining your eyes.

## UFOs: Just the Facts

**COMPANY:** Sky Creative Media Group  
**CONTACT:** 888-UFO-FILE or 602-861-2425, <http://www.skycreative.com>  
**PRICE:** \$49.95 (SRP)  
**REQUIREMENTS:** 68040 or faster, System 7.5 or later, 16MB of RAM, 2X CD-ROM drive, 256-color monitor



New Mexico, the site of the 1947 UFO crash. Thanks to a sturdy interface, you can gather the family around for hours of conspiratorial fun.

But the not-so-sure may get sick. Although it could be the aftereffects of a

(shhh) *alien probe*, there's also a fair chance that the cause is the disc's hokey attempts to set a spooky mood.

### The Last Words:

**Mark:** Although it's definitely aimed more at the Mulders than the Scullys, this is a nicely designed and organized CD-ROM with a wealth of background info and multimedia "evidence" for UFO cultists.

**Judy:** The truth is in here—so are the photos, the film clips, the history, and the documentation—if you believe everything you read.

**Joe:** Just like the CDs on sushi and power-boating, it was only a matter of time before one came out on flying saucers. Thankfully, aside from the editorial slip-ups, this one provides bang for the UFO buck.

**A**ttention, People of Earth: You will not be harmed by the loads of UFO information and decent navigation provided by this disc. But you might become annoyed by the editorial bent of CD makers who feign objectivity.

Anyone who's expecting a "contact" will no doubt enjoy the gobs of films, recordings, and text trying to prove the existence of UFOs. Page through hundreds of government documents that mention UFOs, or take a trip to Roswell,



## Earthscape: Exploring Endangered Ecosystems

**COMPANY:** McGraw-Hill  
**CONTACT:** 800-338-3987, <http://www.mcgraw-hill.com>  
**PRICE:** \$89.95 (SRP)  
**REQUIREMENTS:** 68040 or faster, System 7.1 or later, 8MB of RAM, 2X CD-ROM drive



is. It's too bad, because the disc is full of basic info on 58 endangered species, the likes of the ivory-billed woodpecker and the red ruffed lemur. Eco-interested viewers also get listings of environmental groups by the ton—state by state and across the world—complete with contact information. Toss in the basic, obligatory Ecology 101, and you've got a decent stew of environmental info.

Unfortunately, of the 58 point-and-scroll snippets on endangered species, 38 lack pictures. And there's not a

single video clip to feed the endangered eco-CD buyer.

### The Last Words:

**Mark:** I don't mean to be dismissive when I say, "Jeez, write a book!" It's just that paper is a far better medium for presenting bulk quantities of unvarnished text.

**Judy:** Just because you have a lot of information doesn't mean you need to publish a CD.

**Joe:** Call me crass, but the best entertainment from this disc is reading the names of the endangered animals/plants. My faves: Michigan monkey flower and lesser long-nosed bat. Other than that, it's well-intentioned shovelware.

**T**he disc opens with a lush forest scene, complete with a waterfall highlighting routes for CD exploration. But—much like the Idaho springsnail—the rich multimedia vanishes with little explanation. Once again, development encroaches on open space—disc space, that







# Kidz Stuff

**Brisbane Elementary school kids ditch the books and plug into CD-ROMs.**

## Word Heads

**COMPANY:** Theatrix Interactive/Sanctuary Woods

**CONTACT:** 800-955-TRIX or 510-658-2800,

<http://www.theatrix.com>

**PRICE:** \$29.95 (\$RP)

**REQUIREMENTS:** LC III or faster, System 7.1 or later, 8MB of RAM, 2X CD-ROM drive



**N**ickelodeon looks more like C-Span when you put it up against the frenetic energy of Heads TV—six channels of fast-paced word play hosted by the biggest heads in the business. Create your on-air persona by choosing a head and a body to be you, then surf to any channel to star in your own wild word show. Build words to win a date with

your dream mate, Mad Lib an interview with the nightly news, learn the meanings behind phrases in a celebrity match game, and spend your cash winnings on the shopping channel.

**GOOD FOR GRADES:** 5 to 8

**LIKES:** "I liked how you get to go on game shows and win money." ■Traci

"I liked how you got to pick your body. I also liked that they had some really funny games." ■Amanda

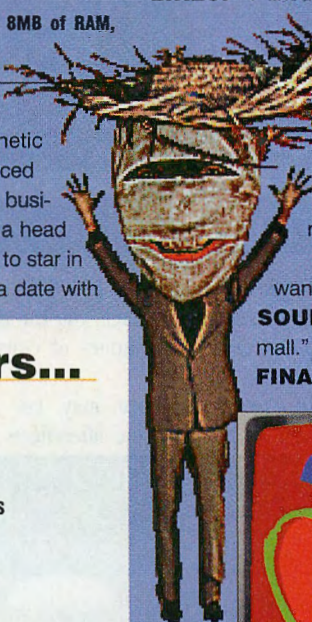
"I liked the voices and all the pictures of the people's faces and their bodies." ■Jonathon

**DISLIKES:** "They do things fast, and they don't really give you a chance to think." ■Christine

"I don't like how it's hard to find the channel you want." ■Justin

**SOUND ADVICE:** "I would lower the prices at the mall." ■Bruno

**FINAL REPORT:** It's not hosted by Alan Thicke!



## Meet the players...



**JUSTIN PEREZ, Age 10, Grade 5**  
**EXPERTISE:** Computers  
**PICK OF THE MONTH:** Word Heads



**AMANDA OLSON, Age 10, Grade 5**  
**EXPERTISE:** Sports  
**PICK OF THE MONTH:** Word Heads



**TRACI NOWAKOWSKI, Age 10, Grade 5**  
**EXPERTISE:** Soccer  
**PICK OF THE MONTH:** Word Heads



**MICHELLE GOODWIN, Age 11, Grade 5**  
**EXPERTISE:** Working with animals  
**PICK OF THE MONTH:** Word Heads



**BRUNO BOVO, Age 10, Grade 5**  
**EXPERTISE:** Baseball  
**PICK OF THE MONTH:** Word Heads



**CHRISTINE SHULENBERGER, Age 10, Grade 5**  
**EXPERTISE:** Sports  
**PICK OF THE MONTH:** Fisher-Price Ready for School Toddler Edition



**JOLIE LAW, Age 11, Grade 5**  
**EXPERTISE:** Music  
**PICK OF THE MONTH:** Wishbone Activity Zone



**JONATHON BUTTON, Age 10, Grade 5**  
**EXPERTISE:** Sports  
**PICK OF THE MONTH:** Backyard Baseball



**HULA YOUR WAY TO HAPPINESS** with the date of your dreams by making words out of prefixes, suffixes, and roots.



**HEADS TV WINS HIGH RATINGS** with kids craving every last word.



## Fisher-Price Ready for School Toddler Edition

COMPANY: Davidson & Associates

CONTACT: 800-545-7677 or 310-793-0600, <http://www.education.com>

PRICE: \$30 (street)

REQUIREMENTS: 68040 or faster, System 7.1 or later, 16MB of RAM, 2X CD-ROM drive



**T**oddlers looking for quality time with the family Mac will get lots of practice poking around the keyboard in this simple game for kids. Just by pressing a key, any key, tots who are too young to type can make sounds, see letters, blow bubbles, and connect the dots to make shapes. The rounded Fisher-Price Little People sing happy songs that soothe your savage beasts as they learn to follow directions, identify objects, and master tough concepts such as quick versus slow.

**GOOD FOR GRADES:** Preschool and younger

**LIKES:** "I like when it sings songs to you because it is so cute when they play their little instruments." ■ **Traci**

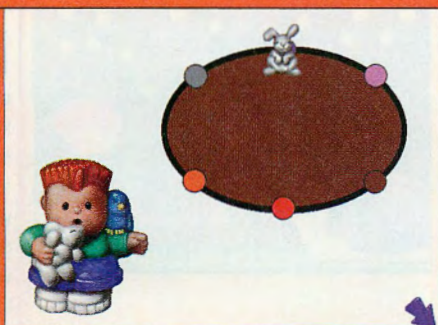
"I liked the way the kids looked. They were really neat. I also liked that they gave you a variety of songs to play." ■ **Amanda**

**DISLIKES:** "I didn't like how some of the games don't teach you anything." ■ **Jonathon**

"I didn't like how you just pushed a button and the girl moved the right way in the maze." ■ **Bruno**

**SOUND ADVICE:** "I would have more games. I would have more characters and graphics." ■ **Justin**

**FINAL REPORT:** It's easier than potty training.



**TYPING TODDLERS** bend their knees and sing happy songs with the Fisher-Price Little People.

## JumpStart 1st Grade Reading

COMPANY: Knowledge Adventure

CONTACT: 800-542-4240 or 818-246-4400, <http://www.adventure.com>

PRICE: \$30 (street)

REQUIREMENTS: 40MHz 68040 or faster, System 7.1 or later, 8MB of RAM, 2X CD-ROM drive



**E**vil takes center ring at this circus where a recently canned magician takes revenge on his former big-top colleagues by turning them into puzzle pieces and scattering them around the carnival. Ex-juggler Frankie is called to the rescue, but he needs help solving puzzles to win enough tickets for a search-and-discover mission through the Lost and Found. Kids can wander from tent to tent in pursuit of clues or can skip right to the reading skill their parents want them to work on most.

**GOOD FOR GRADES:** 1

**LIKES:** "I like the way you have to get the four tickets to find the puzzle pieces." ■ **Jolle**

"I liked how you got to finish the unfinished words and how you got to go to a lot of circus tents." ■ **Bruno**

"The story and how you had to do something to win." ■ **Jonathon**

**DISLIKES:** "I didn't like how everyone is so grumpy because it may hurt little kids' feelings." ■ **Traci**

"I didn't like that you had to pay four tickets just to go to the Lost and Found because it takes too long to get four tickets." ■ **Michelle**

**SOUND ADVICE:** "I would have less pieces to the puzzle. I would have a person that comes with you and gives you hints." ■ **Justin**

**FINAL REPORT:** Evil magician leaves a lot to read into.



**EERIE CIRCUS ADVENTURE** lures after-hours sleuths into reading.

## Madeline Classroom Companion: 1st & 2nd Grade

COMPANY: Creative Wonders

CONTACT: 800-KID-XPRT or 415-482-2300, <http://www.creativewonders.com>

PRICE: \$29.95 (SRP)

REQUIREMENTS: 33MHz 68040 or faster, System 7.1 or later, 8MB of RAM (16MB for PowerPC), 2X CD-ROM drive



**M**adeline, zee little French girl avec zee big accent, makes the move from print to disc with this two-CD-ROM activity set for first and second graders. You'll play with postcards at the stationery store, watch animated shorts at the cinema, send postcards at the post office (but only after figuring out the correct postage), and sort shapes at the play school, to name just a few of Madeline's pastimes. The more you do, the closer you get to taking home your medal, which comes in three

classic metals: bronze, silver, and gold. Second graders get more of the same but with slightly harder levels.

**GOOD FOR GRADES:** 1 and 2

**LIKES:** "I liked that they had three different levels to play at. I also liked that they had a different variety of games to play." ■ **Amanda**

"I liked how you had to get something like the medals. My sister, who is five, really liked it." ■ **Jonathon**

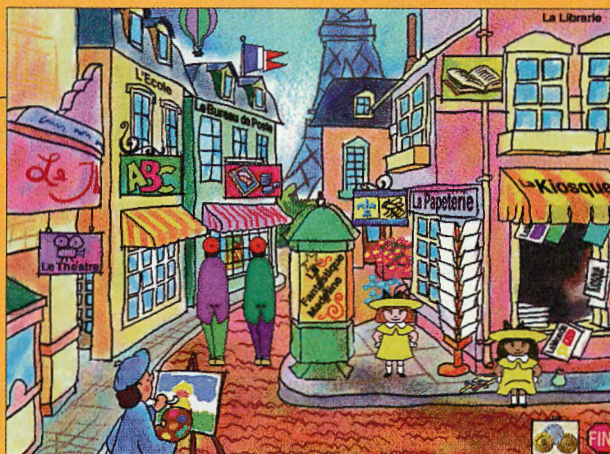
**DISLIKES:** "I didn't like how you had to wait a long time for things to happen." ■ **Bruno**

"I didn't like the games because they were boring." ■ **Traci**

"I didn't like how in the theater they sang in every movie." ■ **Justin**

**SOUND ADVICE:** "Show more characters." ■ **Christine**

**FINAL REPORT:** Wait until your kids get older and just send them to France.



**DOUBLE CD-ROM SET** doesn't equal double the fun.



## Wishbone Activity Zone

COMPANY: Palladium Interactive

CONTACT: 300-910-2696 or 415-464-5500, <http://www.palladium.net>

PRICE: \$19.95 (SRP)

REQUIREMENTS: 33MHz 68040 or faster, System 7.1.1 or later, 8MB of RAM, 2X CD-ROM drive



**T**V's big-name book hound, Wishbone, hosts 10 games designed to familiarize kids with characters from classic works. Create your own Frankenstein's monster, dodge debris on a river raft à la Tom Sawyer, find the perfect props for Wishbone's TV sets, and piece together paragraphs of plots to such famed stories as *Ivanhoe*, *Oliver Twist*, and *The Prince and the Pauper*. Or just flip through Wishbone's scrapbook and admire him in his many guises.

**GOOD FOR GRADES:** 3 to 5

**LIKES:** "I liked the log and river game because it was going so fast that it made me and my friend laugh very hard." ■Michelle

"I liked all the games because they were fun and they had a point." ■Jonathon

**DISLIKES:** "I really did not like the dog's voice. It was a really deep voice. I also did not like that Wishbone kept on talking and



**LITERALLY LITERARY GAMES** draw kids in faster than Cliff Notes before a quiz.

talking." ■Amanda

"I didn't really like the Monster Quiz because it was sort of hard." ■Bruno

**SOUND ADVICE:** "I think they should improve the graphics in the game." ■Traci

**FINAL REPORT:** Wishbone has more than one good game going.

## The American Girls Premiere

COMPANY: The Learning Company

CONTACT: 800-227-5609 or 617-494-1200,

<http://www.learningco.com>

PRICE: \$34.99 (SRP), \$44.99 (SRP) for the Special Edition Collector's Set

REQUIREMENTS: 68030 or faster, System 7.1 or later, 8MB of RAM, 2X CD-ROM drive



**P**laying with dolls takes on a whole new meaning with The American Girls Premiere. Choose between five dolls, 45 costumes, 60 sets, 125 props, 16 actions for each girl, and a wide range of sound effects and musical scores to dress up your show. Record your play with the familiar (yet still difficult) VCR-like controls.

**GOOD FOR GRADES:** 4 to 6

**LIKES:** "I liked how you can make the people talk." ■Jonathon

"I liked the characters and the old-fashioned clothes." ■Traci

**DISLIKES:** "I didn't like how you made her angry and she looked like a fool." ■Bruno

"It took forever, and it was way too complicated." ■Christine

**SOUND ADVICE:** "Improve the voices; they sound like robots." ■Traci

**FINAL REPORT:** Makes real dolls seem so low end.



**FEATURE-PACKED PREMIERE** both intimidates and compels young directors needing direction.

## Colorful Adventures

COMPANY: Comfy

CONTACT: 800-99COMFY or 212-599-2000, <http://www.comfyland.com>

PRICE: \$29.99 (SRP)

REQUIREMENTS: 68040 or faster, System 7 or later, 4MB of RAM, 2X CD-ROM drive



**DO YOUR KIDS A FAVOR** and buy them a pony instead. Ponies are fun. Not like this.

Buddy, or Comfy for help, kids can just press the key with a picture of one of the creatures on the phone. Characters teach kids colors by asking them to hit colored keys at certain parts of the story, which can be heard in 10 languages ranging from Hebrew to Danish.

**GOOD FOR GRADES:** Preschool and younger

**LIKES:** "I liked how Buddy the Bear talks like Barney." ■Jonathon

"I like how you get to use a special keyboard." ■Justin

**DISLIKES:** "Everybody moved so slow, especially the snail. They kept saying, 'I wonder where the bone could be.' It was so boring." ■Amanda

"I didn't like how the sun and the moon argued and set a bad example for little kids." ■Bruno

**SOUND ADVICE:** "Do a few different things." ■Christine

**FINAL REPORT:** Colorful Adventures lacks color and adventure.

## Backyard Baseball

COMPANY: Humongous Entertainment

CONTACT: 800-499-8386 or 425-486-9258,

<http://www.humongous.com>

PRICE: 39.95 (SRP)

REQUIREMENTS: 33MHz 68040 or faster, System 7.1.1 or later, 8MB of RAM, 2X CD-ROM drive



**H**umongous doesn't try to slide any math, reading, or science lessons in between pitches at this just-for-fun baseball game. You simply choose a diamond, pick your team, and play ball. The challenge lies in selecting a powerhouse squad—each quirky kid bats, runs, hits, and fields differently. You control when they move, just not how they move.

**GOOD FOR GRADES:** 3 and up

**LIKES:** "I liked how the players look different. Some are tall, some are small, some were in wheelchairs." ■Amanda



**HUMONGOUS FALLS OFF-BASE** with this slow-running baseball game.

"You got to throw fastballs and hit power balls." ■Bruno

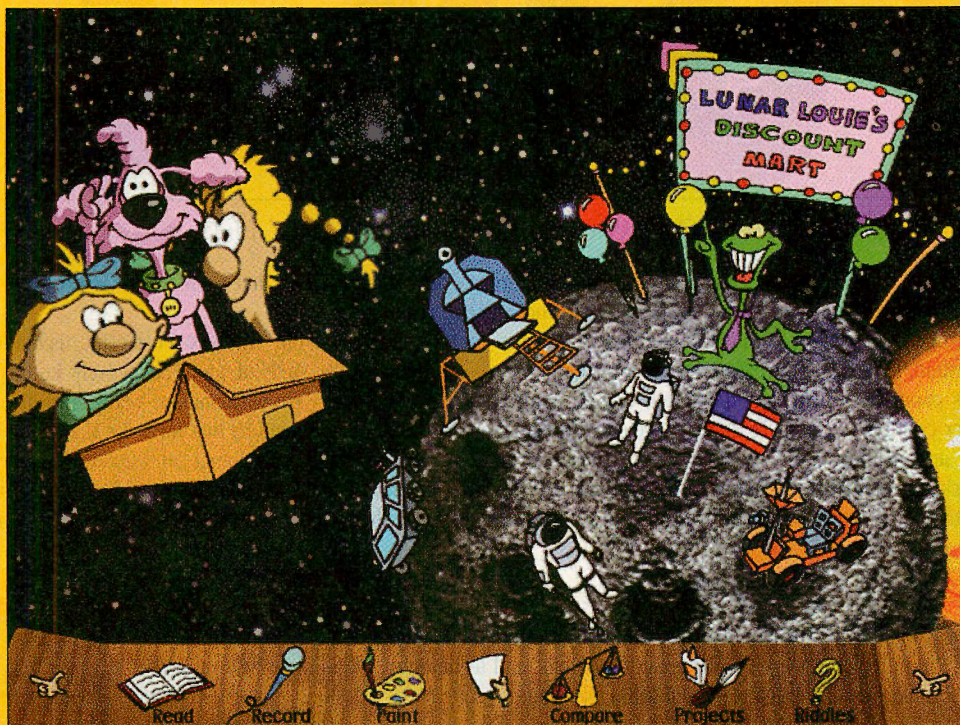
**DISLIKES:** "The players ran too slow." ■Traci

"I don't like how the people move, talk, or swing." ■Justin

**SOUND ADVICE:** "Don't have the teasing noise in the background." ■Christine

**FINAL REPORT:** Humongous hit the field and ran too slowly.





**"Without a doubt the top space-education title"**

— Videogame Advisor

**Introducing Connie & Bonnie's Birthday Blastoff.™ The latest sign of intelligent life.**

*Connie & Bonnie's Birthday Blastoff* is the first title in our Active Stories™ series of "animated books that make learning come alive."™ It's an interactive interstellar adventure offering a view of space second only to the front seat of the Discovery shuttle.

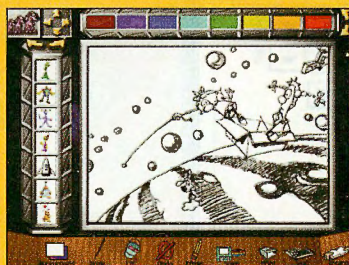
**A launch pad for learning.**

Every page provides new adventures and new things to learn. As Connie and Bonnie speed past Mars, kids discover why it's red, and how much they would weigh standing on its surface. Fun riddles then challenge your kids to apply their newfound knowledge.

And to encourage further exploration, each page suggests activities away from the computer, like using a flashlight and an apple to study eclipses.

**More fun than zero gravity.**

From connect-the-dots constellations to genuine NASA videos, we have every outer-space activity imaginable. And with our "learn as you play" philosophy, they all educate while they entertain. One small step by you will help your kids make a giant leap in learning. Call 1-888-201-5337 today to try the software, risk-free for 30 days. If you're not completely satisfied, return it and you'll owe nothing. Or keep it for \$29.95 plus \$4.95 shipping and handling.†

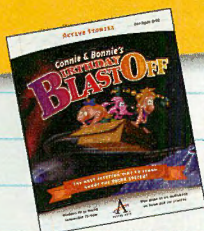


*Kids can paint using the fun stamps, colors and backgrounds provided.*



**THE SEARCH FOR INTELLIGENT LIFE BEGINS AT HOME.™**

**Try it risk free for 30 days  
Call 1-888-201-5337**



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Offer ends  
February 1, 1998





# how to work with PDF files

Ten great tips for creating flawless electronic paper files with Adobe Acrobat.



**FIND ACRABAT READER and an Acrobat Quick Help card (the ACROAID.PDF file) on The Disc.**



**FIND LINKS to helpful Web sites and resources at <http://www.macaddict.com>.**

**E**very Mac has it. Most manufacturers use it. But the average Mac addict doesn't understand it. "It" is Portable Document Format, or PDF, for short. And it's Adobe Systems' answer to the question, How do you create "electronic paper"?

In Adobe's paperless world, any document can be made into a PDF file. After creation, these PDFs, in turn, are equally legible on any monitor, any printer, and any computer system. In other words, a QuarkXPress file that has been converted into a PDF will be equally readable on any Macintosh, Windows, and Unix system.

Provided, that is, that each system is properly equipped with PDF reading software.

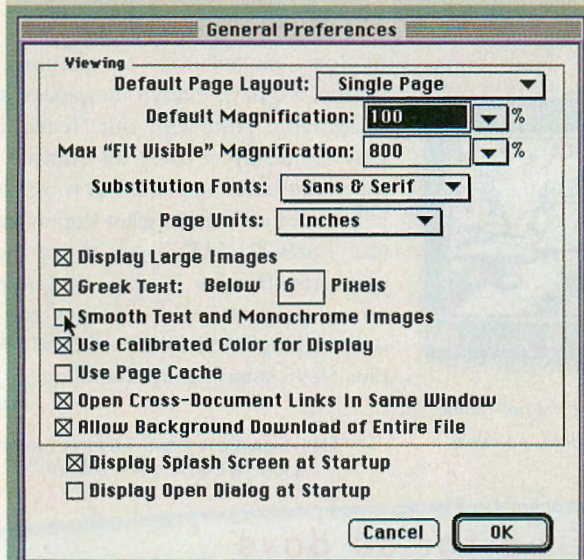
Derived from Adobe's PostScript technology, PDFs are the domain of a suite of tools collectively known as Acrobat. These Acrobat tools are what makes, reads, and prints electronic paper. The three applications that form the backbone of Acrobat 3.01 are Acrobat Distiller, Exchange, and Reader. Distiller turns a document into a PDF file, Exchange lets you fine-tune your PDF file, and Reader lets other people view the PDF file. —*Dave Prochnow*

## The 10 Tips

Armed with the proper set of Acrobat tools, you can easily master the creation of your own electronic paper. Here are 10 great tips, tricks, and techniques that will make you an overnight electronic publishing sensation.

### TIP 1 Don't Anti-alias Text

If you're suffering from fuzzy PDF text, don't change your eyeglass prescription; change the anti-aliasing option in Reader. In order to give text a smoother appearance, Adobe included an aliasing text option in Reader 3.0. This option can be easily disabled in the General Preferences dialog box under the File menu. The anti-aliasing option is labeled Smooth Text and Monochrome Images. Disable this option and your eyesight will thank you.



TURN OFF THIS ANTI-ALIASING option for sharper text.

### Hot Tip:

Remember, if you use a plug-in for PDF creation and it isn't in this list, you must include the plug-in with the PDF for proper viewing by anyone else.

### TIP 2 Know Your Plug-ins

In order to obtain the best results, you must equip yourself with the best tools. Right? Well, almost. When you use a plug-in with Exchange, that same plug-in must be available to your PDF user. Otherwise, some ugly question marks might appear in the PDF, and that neat plug-in's capability will be unavailable. Standard plug-ins that come with the Acrobat package include those depicted at right. Lots of other plug-ins can be purchased from third-party vendors.



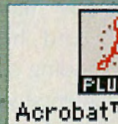
**AUTOINDEX**—Enables you to attach a searchable index to a PDF.



**FORM**—Activates the elements of a PDF form (for example, buttons, text fields, drop-down menus, etc.).



**MOVIE**—Brings the power of multimedia alive in a PDF.



**SEARCH**—Provides access to a searchable index of PDF files.



**WEBLINK**—Connects a PDF link to the Internet.



# Create, Tune, Read PDFs

## Tools to Create PDF Files

**Distiller** This is it. This is the workhorse Acrobat utility for turning anything into a PDF. Equipped with numerous compression, font, image, and color options, Distiller is the professional's choice for creating a PDF from any document.

**Distiller Assistant** This could be the most underused Acrobat feature. Instead of launching Distiller for infrequent PDF creation chores, this PostScript file monitor utility can be configured for loading Distiller as needed, monitoring the distillation process, closing Distiller upon completion, and launching Exchange for PDF linking and editing. By watching a predetermined folder, Distiller Assistant is automatically initiated when a PostScript file is saved to the defined destination location.

**PDFWriter** This is Adobe's answer to "making PDFs for idiots." The PDFWriter is a printer driver substitute that removes the Distiller process from the PDF creation loop. The results, however, can be less than satisfying. PDFWriter PDFs are inherently corpulent, undisciplined, and poorly defined for online delivery.

## Tools to Fine-tune Distilled Files

**Capture** One of the best utilities included with Acrobat. When used with Exchange, Capture is able to convert bitmapped text into PostScript fonts through some clever optical character recognition (OCR) algorithms. In Acrobat 3.0, Capture was

omitted from the Macintosh version. Acrobat 3.01 corrected this omission.

**Catalog** Makes a searchable index from a collection of PDFs. This utility is ideal for CD-ROM-based PDFs.

**Search** An extension of Catalog that enables the searching of PDF indexes.

**Exchange** After a PDF has been distilled, you must manually add links, bookmarks, page cropping, page rotation, and file security. All these functions are performed by Exchange.

## Tools to Read PDFs

**Reader** This is the portion of Acrobat that comes freely installed on every modern Mac. Conversely, this is the Acrobat utility that must cohabit any other computer systems (for example, Windows and Unix) that are expected to read PDFs. Luckily, Adobe offers free Reader software for all Windows systems and a large number of Unix platforms. Therefore, just about any computer user should be able to read and print a PDF.

**NOTE:** A new plug-in feature found in Acrobat 3.0 enables Reader to be called by Netscape Navigator 3.x (and later) and Microsoft Internet Explorer 3.x (and later) for importing PDFs directly into the browser window.

## TIP 3 Learn to Use Electronic White-out

One of the most frustrating aspects of making a PDF is the inability to make minor text and graphics changes. Yeah, you could use Adobe Illustrator for performing some rudimentary corrections, but wholesale changes are impossible. That is, unless you know how to use Acrobat's built-in electronic correction fluid. Here's how to use this undocumented feature in Exchange:

**Step 1.** Select the Form tool from Acrobat Exchange's toolbar.

**Step 2.** Draw a rubber-band box around the offending text or graphic.

**Step 3.** Now just fill in the blanks of the Field Properties dialog box. You will need to concern yourself with only the options listed on the Appearance tab. Supply these replies to the following options:

**Name:** This blank must be filled in with a valid name. Create a name, such as white-out1.

**Type:** Select Text

**Border Color:** White (or your paper color)

**Background Color:** White (or your paper color)

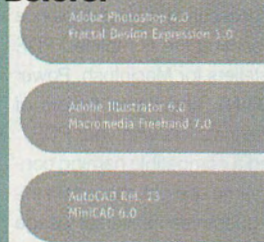
**Read Only:** Select this option. You don't want anyone writing inside your correction.

**Step 4.** The offending text or graphic is now obscured by a swash of electronic correction fluid.

## NOTE:

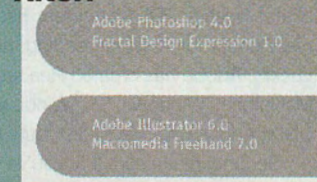
The text field that you create for your correction is actually an element that gets added to the top of the PDF. Therefore, Reader will display the original PDF text or graphic first, then paint the whited-

### Before:

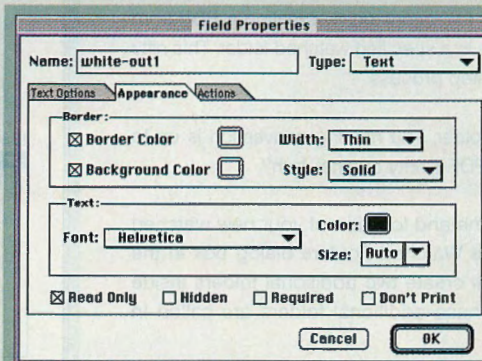


OOPS. BOTH OF THESE CAD PROGRAMS are now obsolete. Use electronic white-out to eliminate the problem.

### After:



THE OFFENDING TEXT has been easily eliminated with no time lost to rewriting, reworking, and reformatting, thereby leaving more time for more creating.



USE THE FORM TOOL to draw a box around the error, fill in the blanks on the Field Properties dialog box, and you're ready to ship your newly corrected PDF.

out box over it. This action could cause an unsightly jump or flash in the display of the PDF. During printing, however, the correction thoroughly hides the unwanted information.



## TIP 4 Open a Window to Your World

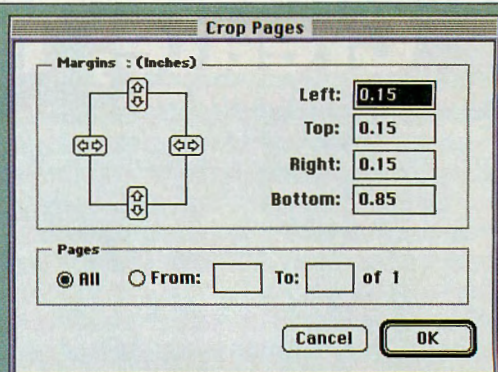
Page size is key to the enjoyment of a PDF. When creating a PDF document, the optimal PDF page dimensions for online delivery are 7.75 x 6.25 inches. This specification allows for a left-hand margin that can hold a full range of Acrobat bookmarks. If you will not need the navigational assistance of bookmarks, you can increase your page dimensions to 8.58 x 5.58 inches. Your online readers will thank you for being so thoughtful. You can either make this your default page size during document creation or crop each page's size inside the final PDF with Exchange.

### Hot Tip:

Although you might initially think that you need to purchase Acrobat software to unleash the power of PDF, you might already have the necessary tools at hand. If you already own PageMaker 6.5, Persuasion 4.0, FrameMaker 5.0, or Photoshop 4.0, then you have access to Adobe's PDF Distiller. Once armed with Distiller, you can use it to turn any PostScript file into a PDF.

If you elect to crop a page's size in Exchange, remember this:

- Use the Crop Pages dialog box in the Document menu.
- All pages of the PDF can be adjusted simultaneously. This practice ensures that every page looks the same.
- You can crop a page either through margin dimensions or with movable adjusters.



ADJUSTING A PDF PAGE'S DIMENSIONS can be quickly accomplished with Exchange's Crop Pages dialog box. Visual margin cues guide you through the process of cutting your electronic paper to fit your message.

## TIP 5 Use Type 1 Fonts

During the text creation process in QuarkXPress, Adobe PageMaker, or Adobe FrameMaker, you can greatly reduce your final PDF file's size by using Type 1 fonts. These outline or scalable fonts include Times, Helvetica, Courier, Symbol, and Zapf

Dingbats. Adobe Type 1 fonts are used for the display of text on all Reader-equipped computers. Therefore, if you want the smallest PDF possible that is universally readable, rely on Type 1 fonts during document preparation.

## TIP 6 Gather Together

After you've built the perfect PDF, you might want to publish your work. There are several points to keep in mind when you're assembling a finished PDF for delivery. First, make sure that your audience has Reader for viewing, reading, and printing the completed PDF. Luckily, Adobe has created Reader installers for Macintosh, Power Macintosh, Windows 3.x, Windows 95/NT, and some flavors of UNIX. And you're free to distribute these installers with your PDF.

Second, make sure that you've used a compatible naming convention for your PDF. In this case, a file name of eight characters followed by a .PDF file extension will guarantee universal usage across all computer platforms.

Finally, if your PDF is a thing of multimedia beauty, remember to include all referenced QuickTime movies with the PDF—these files are not automatically embedded. Also, be prepared to endure one final encounter with Windows craziness. In order for Windows users to be able to view QuickTime movies, they must have QuickTime for Windows installed on their computer systems. This step might require the inclusion of Apple's QuickTime for Windows installer with your PDF. And, to make matters even worse (what could be worse than Windows?), there is a 16-bit installer for Windows 3.x and a 32-bit installer for Windows 95/NT. Welcome to PDF Publishing 101.

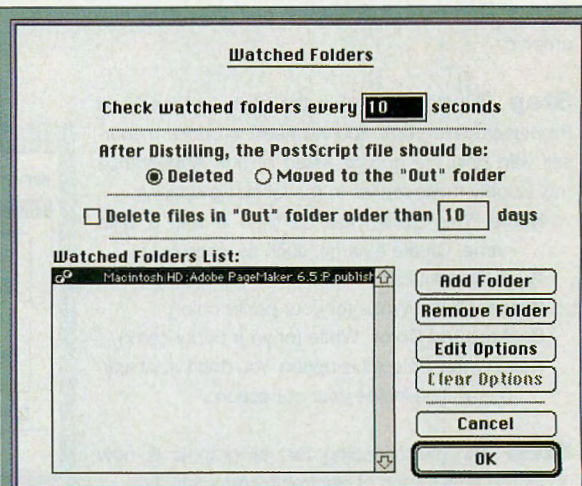
## TIP 7 Set Up Watched Folders

If you plan on becoming a full-scale PDF publishing factory, you must establish a set of watched folders for Distiller. Basically, Distiller can be configured for automatically creating a PDF from any PostScript file that lives in a specified watched folder. This nifty timesaver is a simple two-step process:

**Step 1.** Make a new folder. The naming convention is up to you, but we like Watched PDF. Pretty original, huh?

**Step 2.** Define the name and location of your new watched folders in Distiller with the Watched Folders dialog box in the Distiller menu. Distiller will create two additional folders inside your Watched Folders. These additional folders are called In and Out.

Now, anytime a PostScript file is saved to the In folder of the Watched Folders, Distiller will automatically perform its predefined PDF function. There is one caveat, however: Distiller must be active for this process to happen automatically. Otherwise, the action is deferred until Distiller is activated.

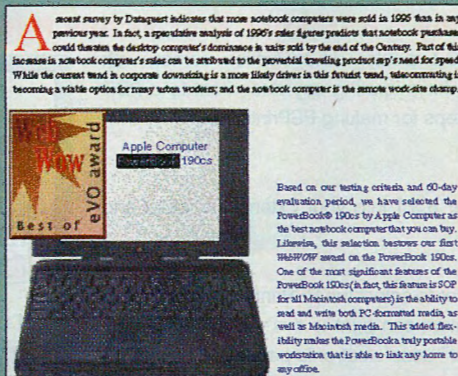


WATCHED FOLDERS are a valuable timesaver for rapid PDF publication. Use the Watched Folders dialog box to set up, surprise, watched folders. Two notable options in this dialog box include setting the frequency for Distiller to check the watched folders for PostScript files and selecting the automatic deletion of the original PostScript file.



## TIP 8 Search for Images

Wouldn't you like to be able to search a PDF for images? You can easily assign a descriptive word to any image so that it can be located with the Acrobat Reader Find dialog box. Before you create the PDF, type your keyword entry inside your favorite publishing application. Then, place this text behind the graphic image. Usually, a Send to Back command will accomplish this task. Make sure that the graphic image completely hides or obscures your keyword. Save the document and use Distiller for creating the PDF. If everything goes according to plan, anyone can use Reader to search for this invisible keyword entry. The result is a searchable picture.



BY USING THE FIND DIALOG BOX in Reader, the keyword **PowerBook** found this neat picture of the PowerBook 1900s. This keyword was inserted behind the photograph inside QuarkXPress. (Note: In this example, the keyword **PowerBook** was made visible for demonstration purposes.)

## TIP 9 Create Hot Spots

In order to make a PDF interactive, you must know your document's hot spots. In a PDF, these hot spots include movies, sounds, bookmarks, thumbnails, articles, notes, and links. Each of these interactive areas is created by a set of tools, buttons, and commands within Exchange:

**1. Movies and Sounds** The Movie tool defines the dimensions, file name, player options, appearance, and poster image for the movie file. Conversely, sound files are added with the Create Link dialog box inside the Link tool. Remember that sounds are embedded inside the PDF, whereas movies remain as a separate file (see Tip 6).

**2. Bookmarks and Thumbnails** You can add Bookmarks for any page inside a PDF. Just move to the desired page and choose Add Bookmark (Command-B) from the Document menu. The Bookmarks can then be nested into neat triangle-activated hierarchies by dragging each bookmark icon to the left or right of the top-level document. Thumbnails are created collectively for the entire PDF. To make Thumbnails, select the Create All Thumbnails command from the Document menu. This system of visual cues is a great way to create an easy navigation scheme for a complex document.

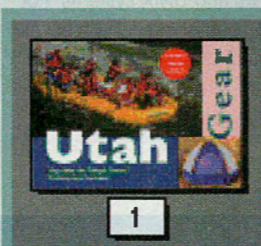
**3. Articles** Much like a story you would read in *MacAddict*, the text of a PDF can be structured into an "article." An article thread is an easy reader's guide through a PDF at a comfortable viewing magnification. You can define these threads with the Article tool under the Tools menu by stretching the rubber-band box around each portion of the thread; add a title, and you've created an article.

**4. Notes** Do you wish that you could add a yellow sticky note to your PDF? The Note tool lets you annotate PDF files. Just click, drag, title, and write. Notes on PDF pages become a permanent feature of the document and can be color-coded for different types of messages.

**5. Links** Unlike their Web-page cousins, PDF links can have a variety of different appearances; can use different files, PDF pages, or Web Links for destination locations; and can display the destination at a predefined magnification. A link is defined with the Link tool. After you've outlined the desired link with this tool, the Create Link dialog box appears. Simply assign the various attributes for appearance, action, and magnification, and click Set Link. This is not a task for the faint of heart. Setting lots of links inside a PDF can take as much time as creating the original document.



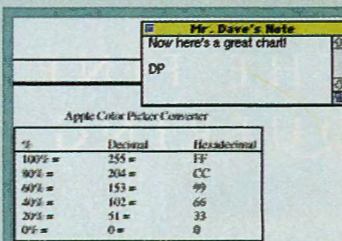
**1. WHEN YOUR CURSOR LANDS** on an embedded movie, the cursor becomes a film frame. Depending on the configuration defined with the Movie tool, clicking on this link will launch the movie, display a movie player controller, and automatically unload the QuickTime player.



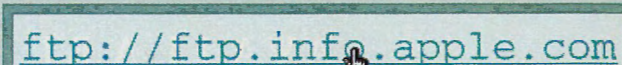
**2. THUMBNAILS ARE MINIATURE** representations of each PDF page. Click on a thumbnail to access its respective PDF page. Be forewarned, however: Thumbnails increase the overall file size of the final PDF.



**3. AN ARTICLE THREAD** is visually indicated by a slight modification of the hand cursor. By clicking on this article thread, the viewer is instantly taken to the beginning of the article, and the Reader's magnification setting is increased for filling the page with the defined column of text. Each click of the mouse advances the thread in easily read chunks of text.



**4. WANT TO PAT** an employee on the back electronically? By using the Note tool, annotations can be added to any PDF inside Exchange. Special color codes and note titles help to separate the wheat from the chaff.



**5. ONE OF ACRABAT'S STRONG POINTS** is its ability to link PDFs to the Internet. The Link tool is able to assign a URL to any text or graphic. To indicate this type of link, the cursor changes to a pointing finger with a Web W stitched on top.



## TIP 10 Make Adobe's PSPrinter Your Virtual Printer

The Adobe PSPrinter 8.3.1 printer driver (which comes with Acrobat) is the best thing for migrating any document to a PDF. Just follow these simple steps for making PSPrinter your very own virtual printer:

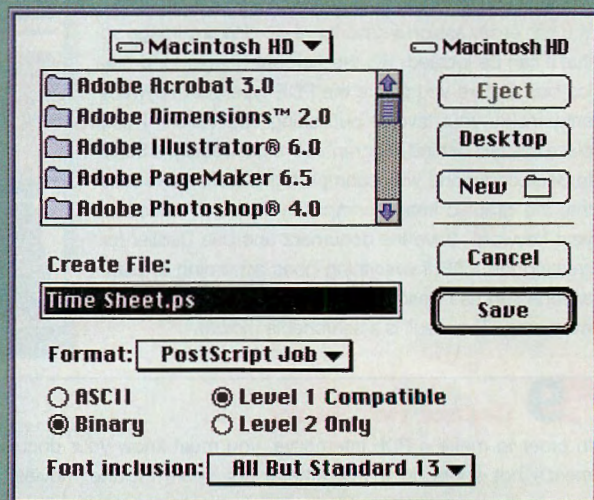
**Step 1.** Drop PSPrinter 8.3.1 into your Extensions folder and restart your Mac.

**Step 2.** Use the Chooser to select the PSPrinter as your default printer. Now every application can print to this virtual printer. Just remember that this "printer" uses electronic paper and "prints" to a PostScript file. There are two key options that you should select inside the Print dialog box:

- ASCII or Binary. Binary is smaller.
- Font inclusion. Base your selection (for example, None, All, All But Standard 13, All But Standard 35, or All But Fonts in PPD File) on the fonts that you used in your document. Selecting None will produce the smallest but least attractive PDF, whereas choosing All But Fonts in PPD File will create a PDF that could display poorly on Windows and UNIX systems. For basic PDF publishing, however, All But Standard 13 is a good selection.

### Hot Tip:

If you're among the mouse-challenged PDF users who wish they could quickly navigate a PDF via simple keystrokes, try this: Inside Reader and Exchange, hold down the Shift key while clicking on the down or up arrow keys. The result is smooth, line-by-line scrolling through the PDF.



USING THE ADOBE VIRTUAL PRINTER is a great way to quickly create PDFs within any application. Just use the Print dialog box to save your print to a PostScript file, fill in the blanks, and you're published.

Dave Prochnow should have paid greater attention to his mother during his formative early PDFolescent years.

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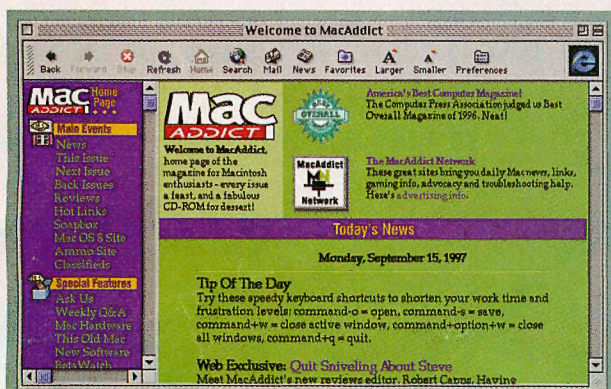
# how to create frames, part 1

Frames can be the root of all evil, or they can be great navigational aids.

**F**rames are the HTML trick used to break up a Web page into two or more smaller tiles or panes, called—surprise!—frames. Unlike the cells in HTML tables, each frame on a page acts like an independent Web page that can be scrolled and reloaded. If you imagine a typical Web page as a TV show, then a page broken into frames is like two or more TV sets stacked on top of and next to each other, each one playing a different show—or a commercial.



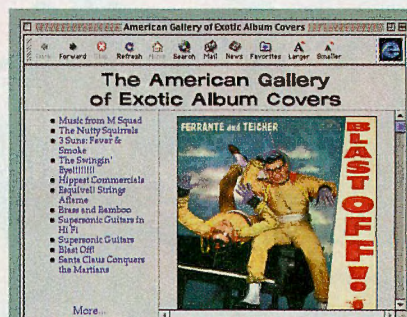
CHECK OUT OUR WEB SITE to see frames in action.



MACADDICT USES a separate, anchored frame for the table of contents.

The *MacAddict* site (<http://www.macaddict.com>) offers a good example of frames. The thin, vertical frame along the left displays an anchored and unchanging table of contents while the larger frame on the right displays the pages whose URLs were clicked at the left. A table of contents or navigation bar like *MacAddict*'s is probably the single most common use for frames.

This month and next, we'll create a frames page with an anchored table of contents or navigation bar like *MacAddict*'s. In addition,



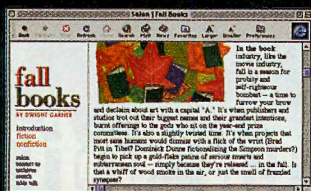
OUR EXAMPLE, likewise, designates discrete frames for navigation, content, and logo.

we'll add a thin, anchored frame across the top to display the site's logo—some sites use a similar frame to display advertising. Except for the content, of course, the gallery site we've put together, at left, is what your page will look like. —Joseph O. Holmes

## Frames as the Root of All Evil



AT ONE TIME, MACROMEDIA crammed useful information into the tiny white frame at the bottom right. The page was crowded, busy, and hard to read. The page has since been redesigned.



THIS ELEGANT PAGE from Salon anchors a simple table of contents along the left.

**W**e're of two minds about frames. On one hand, they're seldom necessary: They're not supported by older browsers, can hog space on the page, can slow down access, can make it harder to navigate a site, and are buggy. Poorly used, frames are a disaster. On the other hand, frames can be part of a simple and elegant page design, especially when they're used to simplify the design and to ease navigation.

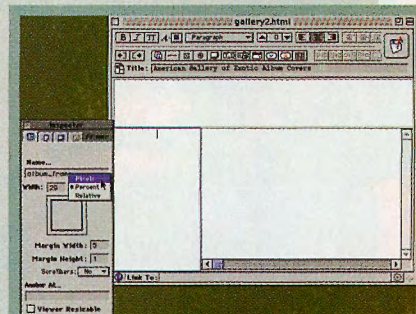
I'm going to assume you're the very model of discretion. You and I will make a deal. I'll show you how to make frames, and you'll promise to be nice with them. No senseless frames. Deal? Sign here: \_\_\_\_\_.

## What You Need to Create Frames

Back in the days when I created an award-winning Web site in a word processor, the most challenging task was creating a table. When frames arrived, they introduced a whole new level of complexity, and to this day, the only easy and fast way to create them is with a WYSIWYG tool such as Adobe PageMill, which lets you create, alter, and preview frames in real time.

No WYSIWYG tool, however, gives you total control, nor lets you create cool unusual features such as *inline* or *floating* frames, which I'll show you in a couple months. You still need to know the basics of frames HTML so you can manipulate them, tweak them, *dominate them*. Frames are like dogs: If you show your fear, they'll jump all over you. The ideal way to create frames is to whip them up quickly with a WYSIWYG tool and then open your page in a smart HTML editor, such as Bare Bones Software's BBEdit, for tweaking.

Let's code!



THE EASIEST WAY to create frames is with a WYSIWYG tool such as Adobe PageMill.



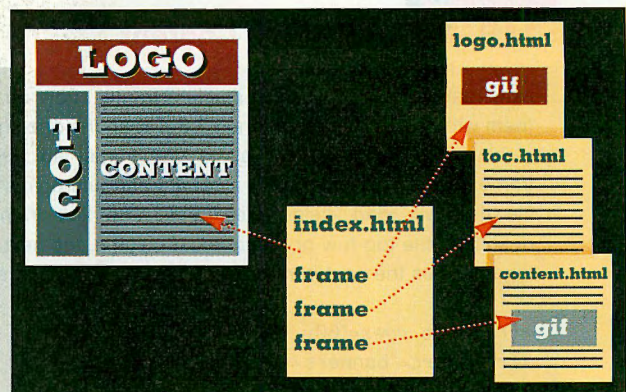
## STEP 1 Dig the Concept

Frames have the reputation of being complicated and difficult, but actually they're easier to create in HTML than tables. They're only more difficult to *conceptualize*. Get the concepts down first, then the execution will come easily.

All the frames on a Web page are defined and described in a single HTML frames document. That document describes how many frames, what kind, where they're placed, what size, and where to retrieve the contents of each frame. But—and pay attention to this—the frames document doesn't contain any *content*. None at all.

The content comes from separate HTML documents. Each frame points to its own HTML document. And those documents are no different from any other HTML Web page, containing anything a regular page contains, including forms, movies, whatever.

So, to create a set of frames, you need to establish the layout of the frames on a frame page and then fill each of the frames by pointing to separate HTML pages.



THE FRAMES IN A WEB PAGE are described in a single HTML document (*index.html* above). Content is contained in separate HTML documents, such as *logo.html* or *content.html*.

## STEP 2 Define the Frameset

Your frame page contains two main sets of tags: an opening and closing pair of *frameset* tags—`<frameset>` and `</frameset>`—and, between those frameset tags, two or more *frame* tags, one for each frame. The frameset tags tell a browser what kind of frame and how many are on the page. The frame tags tell the browser what HTML document to use for the content of each frame.

Pay attention: The frameset tags replace the `<body>` and `</body>` tags that usually appear on a page. So if you forget to get rid of the body tags, browsers will ignore the frames!

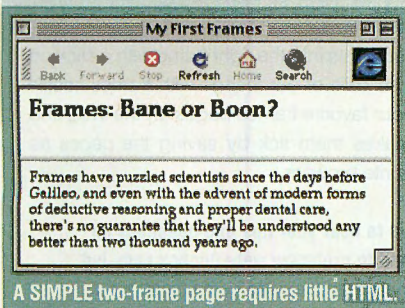
Before we go any further, examine this typical bare-bones frameset, consisting of just two frames, stacked horizontally:

```
<head>
<title>My First Frames</title>
</head>
<frameset rows="40%, 60%">
```

```
  <frame src="title.html">
  <frame src="body.html">
```

```
</frameset>
</html>
```

That simple bit of HTML, plus two pages, named "title.html" and "body.html," will produce this two-frame page:



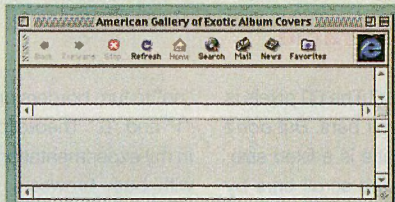
A SIMPLE two-frame page requires little HTML.

Inside the frameset tag, we are required to insert the attributes that tell the browser three details: (1) whether to divide the frameset into columns or rows (using either the *cols* or *rows* attribute); (2) how many frames there are; and (3) how big each frame should be (in absolute pixel dimensions or in percentages).

In our case, we'll divide the page into two rows: one 60-pixel-high frame at the top for the site's logo, and a larger frame underneath:

```
<frameset rows="60, *">
</frameset>
```

And here's how our two frames will look:



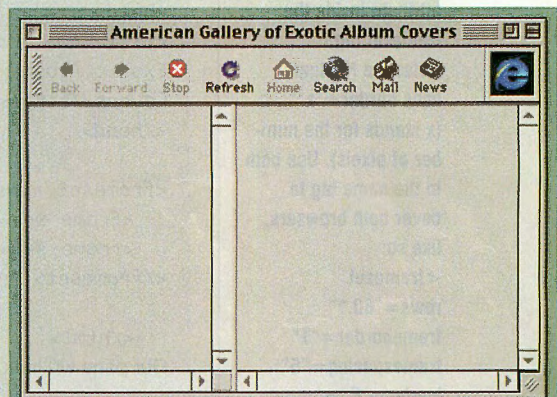
WE DIVIDED THE FRAMESET into two rows, which orients the frames horizontally.

As our example shows, row sizes are specified from top to bottom, and an asterisk is substituted for a pixel size to make any row or column fill up the rest of the window. Never specify *every* column's or row's absolute size, or else the browser window won't properly resize for different sizes of monitors.

In theory, we could divide the page into three or four or even a hundred rows:

```
<frameset rows="60, 60, 60, *,
60, *, 10, 10">
</frameset>
```

"OK, wise guy. What about columns?"  
Well, isn't it obvious?



IF WE SPECIFIED A COLUMN ARRANGEMENT for the frameset, the frames would be oriented vertically.

```
<frameset cols="40%, 60%">
</frameset>
```

Column sizes are specified left to right, and you'll notice that this time we used percentages to set the column sizes. The left frame will occupy 40 percent of the visitor's window, the right frame will occupy 60 percent, no matter how the browser window is resized. (There's no need to leave one column or row unspecified if you use percentages.) For a logo, ad banner, or anything of a fixed size, you'll surely want to use absolute sizes, not percentages.

### Hot Tip:

You don't actually need to use an HTML document as the source file for a frame. You can point directly to a graphics file:  
`<FRAME SRC="title_pic.gif">`



## STEP 3 Fill In the Content

Now that we've got a pair of stacked frames, how do we fill them with text and purdy pitchers? Between the opening and closing frameset tags, we place one frame tag for each frame. Inside each frame tag, a *source* attribute points to the file that will load inside the frame. The first frame tag describes the top row or the leftmost column, the next frame tag specifies the next frame down or to the right, and so on:

```
<frameset rows="60, *">
<frame src="banners/logo.html" >
<frame src="doc1.html">
</frameset>
```

### Hot Tip:

To set the *thickness* of the frame borders, Internet Explorer uses a *framespacing="x"* attribute inside the frameset tag; Netscape Navigator uses *border="x"* (*x* stands for the number of pixels). Use both in the same tag to cover both browsers, like so:

```
<frameset
rows="60, *"
frameborder="1"
framespacing="5"
border="5">
```

At right (top) is a standard HTML page, "logo.html," that does nothing but display a graphic for our forum logo:

But now let's plug that page in as the source for our top frame:

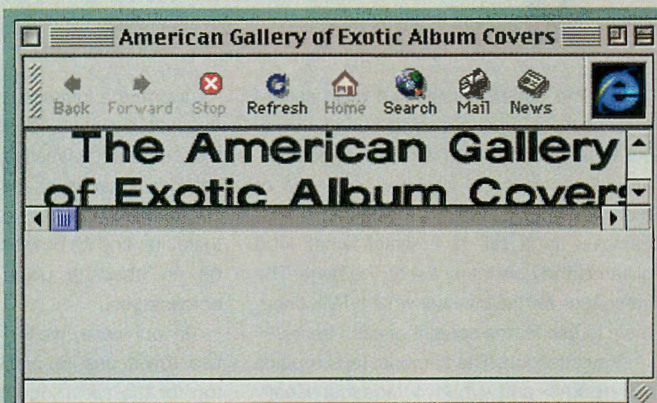
```
<html>
<head>
<title>American Gallery of
Exotic Album
Covers</title>
</head>
```

```
<frameset rows="60, *"
<frame src="logo.html">
<frame src="">
</frameset>
```

```
</html>
Our page will look like this:
```



EACH FRAME TAG refers to a separate frame and specifies a source attribute, which points to an HTML file (shown here) that contains the content for the frame.



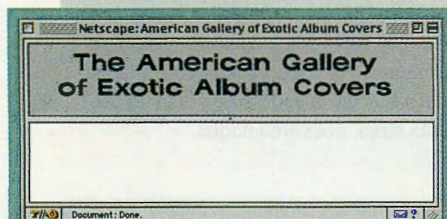
THE FIRST FRAME TAG refers to the top row (or far-left column), so our content appears in the top frame.

## STEP 4 Step 4: Tune Up That Frame

You clever devil, you spotted a problem, didn't you? The 60 pixels is too small to display the whole title and those scroll bars. *But don't adjust the pixel size of the top row.* Because the title is a fixed size, we don't want visitors to scroll the frame. Ditch the scroll bars by adding the attribute *scrolling="no"* to the frame tag.

```
<frame src="logo.html" scrolling="no">
```

Now it looks more like we imagined:



GET RID OF THE SCROLL BARS from the title frame so readers can't muck with it.

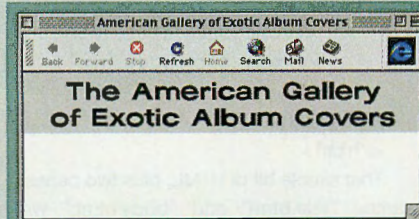
**Note:** To make the frames stand out better in our illustrations, we used a white background color in some of them. If you like the effect, it's easy to do—just add a background color to the HTML source pages of your frames. We added the attribute *bgcolor="#FFFFFF"* to the body tag to create a white background.

By default, frames display with a border, but our example has no border between the title frame and the lower frame. We accomplished that by adding a *frameborder* attribute to the frameset tag. Netscape Navigator uses "yes" and

"no" to turn borders on and off, respectively, and Internet Explorer uses "1" and "0." Theoretically, each browser will accept the other's value. In my experimentation, however, only "1" and "0" worked consistently with both browsers:

```
<frameset
rows="60, *"
frameborder="1">
```

Well, we've got lots more work to do! Next month we'll focus on creating two columns inside the bottom row of our page, and then we'll learn how to load the contents into the right frame with a click on the left. Plus, we'll try to take care of our friends with frames-hostile browsers. Until then, visit your favorite frames pages on the Web and examine the HTML that makes them tick by saving the pages as "HTML Source" in your favorite browser.



REMOVE THE BORDER between the title frame and the lower frame.

Joseph O. Holmes would love to hear your tips and questions on Webmaster topics. Send email to [professor.web@pobox.com](mailto:professor.web@pobox.com), but please remember, he can't personally reply to every message.



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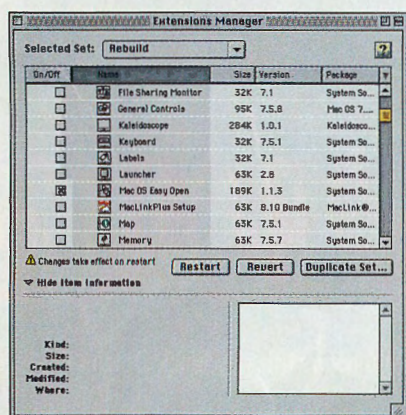
# ask us

## your questions

We answer your technical questions, no matter how simple or complex.

**Q** Why, after rebuilding my desktop with extensions turned off, does the Mac then rebuild the desktop again when I let the extensions load normally?

**A** The Mac OS Easy Open control panel (previously called Macintosh Easy Open) is the cause of this strange behavior. It relies on the desktop file to determine which applications you have on your hard drive. If you rebuild the desktop (hold down Command-Option when the Finder first appears) when Mac OS Easy Open is disabled, it gets confused the next time it loads, so it forces the Mac to rebuild the desktop again. To avoid this annoyance during future rebuilds, instead of holding down Shift at startup to turn off all extensions, use the Extensions Manager control panel to disable all extensions and control panels except Mac OS Easy Open.



**AVOID REBUILDING** a just-rebuilt desktop by disabling extensions via the Extensions Manager (leaving only Mac OS Easy Open turned on) rather than via the key command at startup (which disables all extensions).

System file (not the System Folder). The next time you open the Sound control panel (the Monitors & Sound control panel on PCI-based Macs), your additions should appear in the list of Alert Sounds. If you change your mind, there are two ways of undoing this action. To hold onto the sound for future use, double-click the System file and drag the unwanted sound file to a new location instead. To delete a sound file, select an Alert Sound from the Sound control panel and click Remove. Incidentally, you can't remove the Simple Beep sound because it's built into the Mac OS.

The other way of adding an Alert Sound is to click the Add button in the Sound control panel. This opens a small window that allows you to record up to 10 seconds of sound using whatever device is specified in the Sound In portion of the Sound control panel. It's a pretty rudimentary recording interface with no editing capabilities, but it works for short snippets of audio.

**Q** Ever since I upgraded to Mac OS 8, the Chooser keeps switching my printer to the modem port even though my printer is physically connected to the printer port on the back of my Mac. Every time I start the Mac, I must open the Chooser and change the setting to the printer port despite having AppleTalk inactive and background printing turned off. Why doesn't the Chooser remember the default I want?

**A** According to Apple, when AppleTalk is active, it takes over the printer port, causing some serial printer drivers to select the modem port instead. Because the resources are loaded at startup, the problem persists even if you subsequently turn off AppleTalk by clicking the Inactive button in either the Chooser or the AppleTalk control panel. One solution is to click the AppleTalk Inactive button and then immediately choose Restart from the Finder's Special menu. After restarting, check the Chooser to make sure AppleTalk is indeed turned off. Keep in mind, however, that AppleTalk is automatically activated when you use File Sharing or Apple Remote Access. Under these circumstances, make sure the Apple Remote Access Client extension is installed, then choose Remote Only from the Connect Via pop-up menu in the AppleTalk control panel, thereby freeing your printer port for use by your serial printer.

**Q** I have some sounds that I'd like to use as Alert Sounds. How do I add them to the standard set of sounds (Sosumi, Wild Eep, etc.) that appear in the Sound control panel?

**A** Your sounds must be System 7 double-clickable sound files. If they're not, convert them with a utility such as the freeware program SoundApp by Norman Franke. When the conversion is finished, quit all open applications, then drag and drop your sound files onto the



**FIND THE  
FREWARE  
programs  
mentioned  
on The Disc.**

## Evil Easter Egg

**W**hile Dave Rubinic's freeware application Easy Errors serves the practical purpose of explaining system error codes in simple English, it's not without a sense of humor. If you enter error number 666, the result code is "macPossedErr" with a description explaining that "your machine has been taken over by an evil demon." Thanks to reader Jody Frazier for bringing this to my attention.

**Q** I have an older Mac and would like to use RealAudio on the Internet. The software downloads and installs OK, but when I try to play something, an alert box appears telling me that it can't play because my Mac lacks an FPU. Is there any way to get it to work?

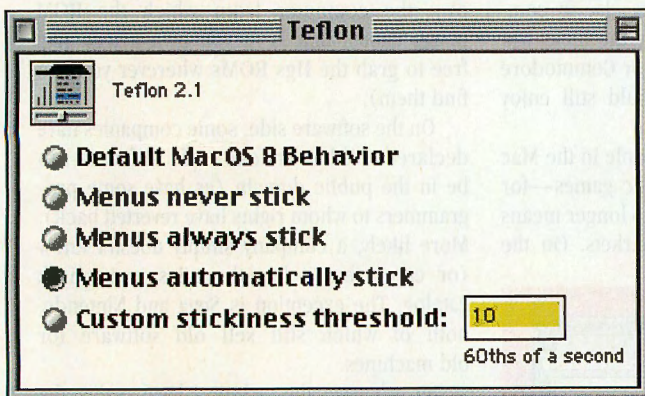
**A** For those who don't know what it is, RealAudio is a system that allows Web surfers to listen to audio that is streamed in real time without download delays using standard computers and telephone lines. When it works, it's really very cool. However, as you've discovered, the



latest version of RealAudio Player requires a Mac with at least a 68040 CPU, 8MB of RAM, and a 14.4Kbps modem, leaving older Macs out in the cold. The basic problem is that without a floating-point unit (FPU), the Mac can't process the incoming data stream quickly enough to maintain acceptable audio quality. And lest you thought you could trick RealAudio by using John Neil & Associates' SoftFPU control panel, which provides a software-based FPU (<http://www.jna.com>), I'm afraid several readers have reported it can't be done. There are older versions of the RealAudio Player available for download from RealNetworks, formerly Progressive Networks (206-674-2700, <http://www.real.com>), which have less stringent system requirements, but these won't always work with everything you encounter on the Web.

**Q** I'm getting ready to switch over to Mac OS 8 and leave Now Utilities behind, because I understand it's not fully compatible and that Now Software (800-689-9427 or 503-274-2800, <http://www.now-soft.com>) isn't planning an update anytime soon. My only problem is that I've become very attached to the Now Menus option that causes menus to drop down without a mouse click. Is there any shareware program that offers this feature?

**A** I know what you mean about menus that drop down automatically when you move the cursor over them. As one who suffers from repetitive stress injuries, I love anything that saves me mouse clicks. I like Mac OS 8's new sticky menus that stay down without requiring you to keep the mouse button depressed, but I can't imagine why Apple didn't provide auto-drop-down menus as well. I think the two features work wonders together, but other people apparently can't abide these basic changes to the Mac's look and feel. Programmer Orion Bawdon hates sticky menus so much that he released Teflon, a freeware control panel that can turn them off. Thoughtfully, however, Teflon also contains an option for enabling menus to drop automatically. To each his own.



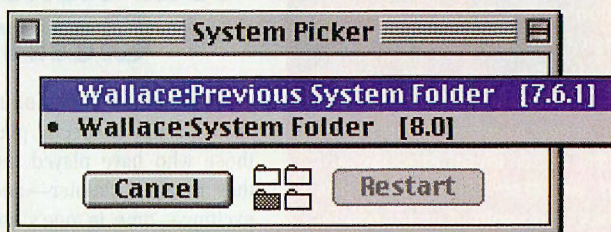
**IMPROVE STICKY MENUS** by adding an auto-drop-down feature with Teflon, or remove the viscosity completely.

**Q** In Mac OS 8, I like the "Always snap to grid" Icon Arrangement option, but is there any way to tighten up the grid? My file names are rarely greater than 12 characters long, and the wide spacing seems like a waste of space.

**A** You can do it if you know where to look. Instead of choosing View Options from the Finder's View menu, choose Preferences from the Edit menu. That's where you'll find Tight and Wide radio buttons that determine the Grid Spacing used in every Finder window.

**Q** I recently performed a clean install of Mac OS 8 only to learn that Symantec's AutoDoubler and DiskDoubler aren't fully compatible yet. Must I completely uninstall Mac OS 8 to go back to System 7.6.1, or is there some way I can switch back temporarily?

**A** When you performed a clean install, your older System Folder was renamed Previous System Folder, and the installer then created a new System Folder to contain Mac OS 8. Because none of your old System 7.5 files were overwritten, you can continue to use them with the help of Kevin Aitken's System Picker. This freeware application searches all available volumes looking for blessable System Folders (essentially, folders of any name containing valid Finder and System files). All you need to do is select the Previous System Folder, then click Restart to go back to using System 7.6.1. Whenever you want to use Mac OS 8, use System Picker to switch back.



**SWITCH SYSTEMS AT WILL** with the freeware System Picker.

**Q** I want to open my Mac SE but apparently need a special tool to get at the hex screws inside the handle. Where I can find this tool?

**A** The good folks at Shreve Systems (800-227-3971 or 318-424-7987, <http://www.shrevesystems.com>) sell the Mac Cracker for \$29. This includes the long-handled Torx wrench you need as well as a tool for prying apart the front and back bezels of classic Macs.

**Q** With Mac OS 8, I like choosing Connect To from the Apple menu to jump to places on the Web but the default URL takes me to Apple's home page. I'm a die hard Apple fan but there's another site that I go to more often and would love it if there was some way to change the default address. Can you help?

**A** Michael Coyle, who runs the Desktop Madness site ([http://macspectre.macintosh.net/desktop\\_madness](http://macspectre.macintosh.net/desktop_madness)), a cool guide to hacking the Mac, whipped this puppy in no time flat. Here's how. Launch ResEdit and choose Get File/Folder Info from the File menu. Locate a copy of Connect To and click Get Info. In the window that appears, change the Type from APPD to APPL (thus making the application an editable AppleScript document again), then quit ResEdit, saving your changes. Launch Apple's Script Editor and open the modified Connect To file. There's a line that begins "set default URL to" not far from the top. Change the default Apple home page URL to whatever you like, then quit Script Editor, saving your changes. Returning to ResEdit, change the modified Connect To file's type back to APPD, select the Use Custom Icon checkbox, then quit and save your changes. The next time you choose Connect To from the Apple menu, it'll sport your default URL. All you need to do is press Return and you're on your way.

Owen W. Linzmayer ([askaddict@aol.com](mailto:askaddict@aol.com)) is the author of *The Mac Bathroom Reader*. Please submit technical questions or tips via email or c/o MacAddict, 150 North Hill Drive, Suite 40, Brisbane, CA 94005.





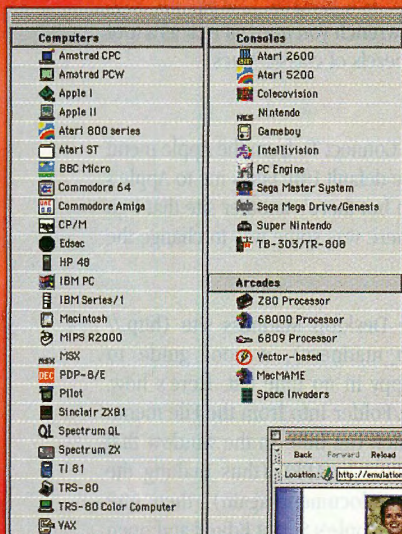
# powerplay

games

We take a break from all those 3D thrillers to get a blast from the past.

## The Emulators

**T**here are numerous sites devoted to emulation on the Mac, but the most comprehensive is Emulation.net (<http://emulation.net>)—the first, and usually only, stop anyone interested in emulation on the Mac needs to make. John Stiles' page serves as a clearinghouse for information on Mac emulation, plus provides links to download every emulator for the Mac. Stiles also ports many emulators to the Mac from the PC. (Note: In the interest of not totally overloading his page, we've provided URLs for specific emulators on page 91. Please avoid going to Emulation.net if you just want to download a specific emulator.)



**NOT ONLY A GAME MACHINE RESOURCE,** Emulation.net has pointers to big ol' mainframe emulators, too.

## Emulation: Your Ticket to Game Nostalgialand

**N**ot unlike books or movies, old games occupy a special place in the heart of those who have played them. Not only may they recall a simpler—and for many, more exciting—time in one's computing past, but there is serious debate as to whether the addition of all the multimedia flare in today's games hasn't killed, or at least obscured, what should be the most important part of a game: the gameplay. To many, the old games were simply better. A lot of that good feeling may be pure nostalgia; there were as many, if not more, crappy games years ago as there are now. But the classics are still classic all these years later—if you can play them. Unlike books, the medium for gameplaying has changed as rapidly as anything else in computing, and until recently, only the lucky few who held onto their Apple IIs or Commodore 64s, or Atari 2600s even, could still enjoy those classics.

Thanks to the dedicated people in the Mac emulation scene, playing classic games—for old computers or consoles—no longer means rummaging in bins at flea markets. On the

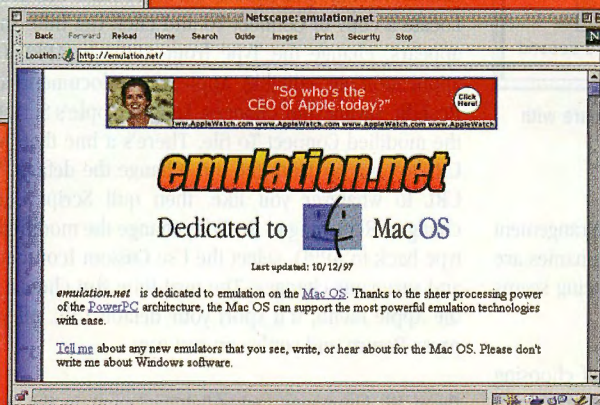
enthusiast side, there are emulators and emulation utilities available, for the Mac, for dozens of systems, from Edsac (the first programmable computer) to the Apple II to the Sega Genesis to the 3Com PalmPilot.

But just because you can get an emulator for a particular system, doesn't mean you can legally use it. First, you might not be able to legally emulate every part of a given system. Second, even if you can emulate the whole thing, running emulated software (available all over the Web, of course) is the same thing as using pirated software, unless you own a real copy of the program. Although ROM images are widely available online, strictly speaking, it is illegal to use them unless you own the computer from which the ROM image came (that is, if you own a IIGs, feel free to grab the IIGs ROMs wherever you can find them).

On the software side, some companies have declared old versions of software to be in the public domain (as have some programmers to whom rights have reverted back). More likely, a company simply doesn't know (or care) that it has the titles in its back catalog. The exception is Sega and Nintendo, both of which still sell old software for old machines.

So, whatever the technical legal reality, the de facto situation for most once-protected software (and hardware) is that it is effectively freely available, with no repercussions. If retro-gaming continues to grow in popularity, more companies may begin to assert their copyrights, but for now, at least on the personal computer side, playing any computer game you ever wanted is as easy as visiting an easily found FTP site. —Chris Charla

(Note: Because MacAddict likes to stay on the right side of the law, we won't print any addresses for downloading software disk or ROM images.)



**EMULATION.NET IS A MAC OS-ONLY KIND of Web site.** We don't want to hear about any Windows software, either.



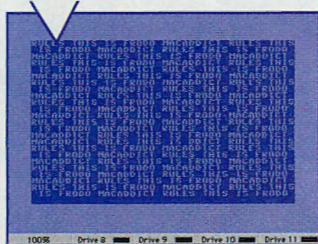
## Personal Computers

**E**mulators are currently available for more than 20 computers, but many of them are only of historical interest (Edsac, PDP-8/3, Apple I) or are for obscure British systems, such as the Amstrad CPC, BBC Micro, or Sinclair Spectrum ZX. Americans looking for a gaming nostalgia rush are likely to be excited mostly by emulators for the Commodore 64, Atari 800 series, and, our personal favorite, the Apple II.

### Frodo

**SYSTEM:** Commodore 64

**CONTACT:** <http://internetter.com/titan/software>



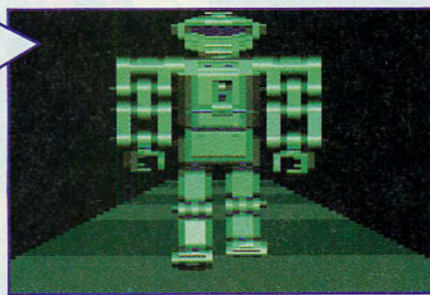
Frodo, originally by Christian Bauer (the Mac port is by Richard Bannister), is also a very robust emulator. For certain things (such as graphical demos), it beats Power64 (a different Commodore 64 emulator). It also runs in full-screen mode—a nice touch—and there is (slow) single-cycle emulation mode that guarantees computability with nearly everything. Bannister's page contains links and information about several emulation projects, including a Mac Plus emulator for faster Macs (why?—to run software that doesn't run on newer Macs).

### Rainbow

**SYSTEM:** Atari 800 series

**CONTACT:** <http://www.shenleyfields.demon.co.uk/rainbow.html>

Atari released a bunch of systems, including the Atari 400, 800, 800 XL, and 5200

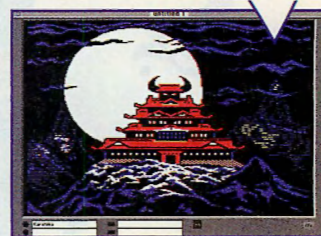


game console, that used the same basic 8-bit hardware, which is what Rainbow, by Chris Lam, emulates. The Atari systems used custom ROMs, so you'll need to find the correct ROM images (or download them from your old Atari system to your Mac) to use Rainbow. Once you get the ROM images, you'll find the program performs admirably. It's fun to compare similar software that was written for Rainbow-compatible hardware—it's amazing how different the quality is, despite the fact that the hardware was all essentially the same.

### Catakig

**SYSTEM:** Apple II

**CONTACT:** <http://www.access.digex.net/~cklipsch/ctkgdoc>



Colin Klipsch's Catakig is one of the best Apple II emulators out there, running smoothly on Power Macs (there's no 680x0 version). It can run multiple Apples at once and emulates even the bugs in the 6502 chip. We found it to be the fastest and smoothest Apple II emulator in casual testing, and it ran everything we tried on it. You'll need to find the appropriate Apple ROM images (for II, II+, or IIe) to use with it. (*Hint: It isn't very hard.*)

## Consoles

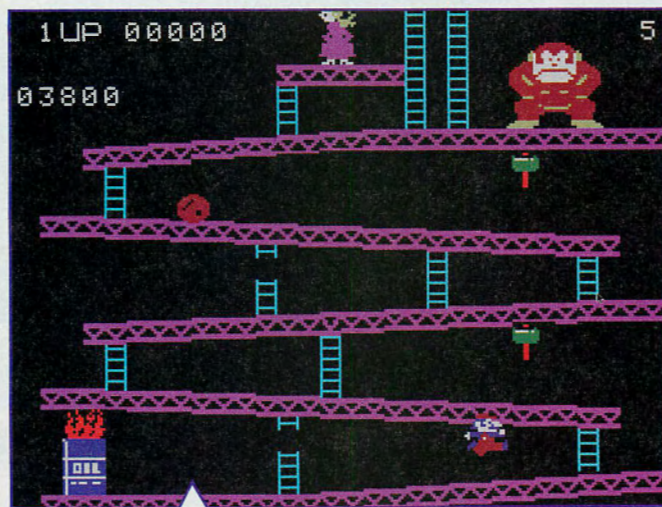
**T**here are several console emulators available, but while the disk images for computer games exist in a legal gray area (at best), there is no question about the ROM images for consoles: They are copyrighted, usually by companies very interested in maintaining and enforcing the copyrights. We have not provided any information on consoles that currently are being marketed—emulating a system that is available at retail is too close to supporting piracy for our tastes.

### Atari 2600 Action Pack

**SYSTEM:** Atari 2600

**CONTACT:** <http://www.activision.com/games/low/classics/atari/index.html>

Despite the Web page, these games are also available for the Mac. Featuring some of the classic Activision titles for the 2600, this is a nice package. Of course, you can't play games that aren't included, unless you use a patch, which is available at Emulation.net, among other sources.



### ColEm

**SYSTEM:** ColecoVision

**CONTACT:** <http://www.komkon.org/fms/ColEm>

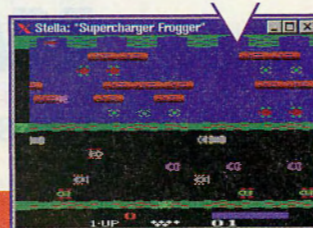
ColEm, originally by Marat Fayzullin (and ported to the Mac by Emulation.net's John Stiles), is a fast, solid ColecoVision emulator. Unfortunately, ColecoVision, which was released just as the video game market was crashing in the early '80s, never had a huge amount of software or support, despite its relatively impressive technical specifications.

### Stella

**SYSTEM:** Atari 2600

**CONTACT:** <http://www4.ncsu.edu/~bwmott/www/2600>

Stella is even better than Activision's emulator, although it needs a fast Power Mac to really shine. If you have one, though, you'll find Stella is one of the most



solid emulators out there. Bradford W. Mott developed Stella, and the Mac port was developed by Aaron Giles. (*Note: Stella proved impervious to our screenshot efforts; the screen here comes from the X-Windows version.*)

### Intellivision for Mac

**SYSTEM:** Intellivision

**CONTACT:** <http://www.makingit.com/intellivision/home.shtml>

Intellivision Productions, a company made up of former Mattel employees (Mattel Electronics was responsible for Intellivision), has acquired the rights to many Intellivision games. Due out in fall '97 was a CD featuring an emulator and 29 games. But, as of this writing, you could freely download a demo with three games from its Web site. The site also features tons of information about this pioneering console, which was the main competition to the Atari 2600.





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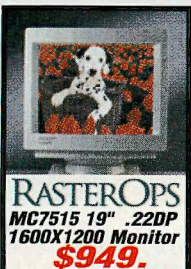
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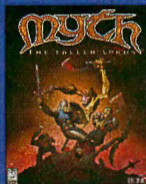
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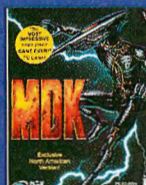
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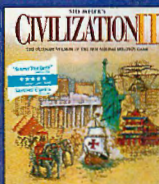
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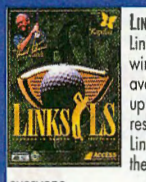
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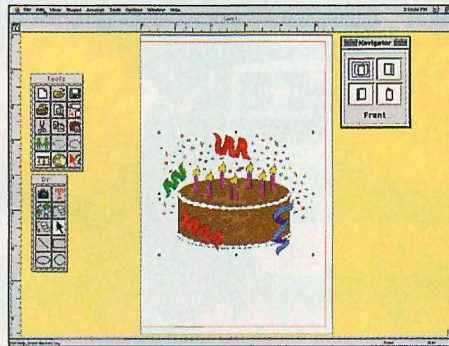
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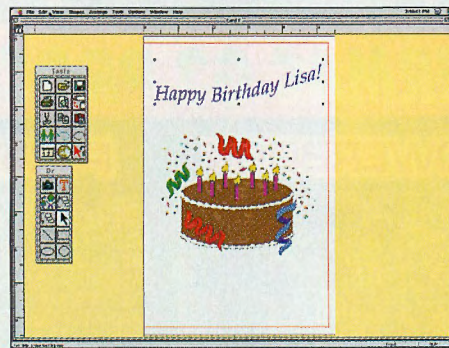
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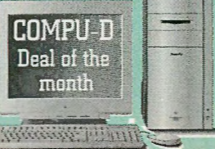
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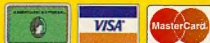


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4.5GB Viking	QM34550VKS	8ms	7200	\$499	\$549		
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6.4GB Stratus	QM36480STS	10ms	5400	\$449	\$499		
9.1GB Atlas II	QM39100ALS	8ms	7200	\$879	\$929		
<b>UltraWide SCSI-3</b>							
2.2GB Viking	QM32275VKS	8ms	7200	\$419	\$499		
4.5GB Viking	QM34550VKS	8ms	7200	\$539	\$619		
4.5GB Atlas II	QM34550ALS	8ms	7200	\$619	\$699		
9.1GB Atlas II	QM39100ALS	8ms	7200	\$919	\$999		
<b>IDE Drives</b>							
1.6GB Stratus	QM31620STA	10ms	4500	\$155	----		
2.1GB Stratus	QM32160STA	10ms	4500	\$189	----		
3.2GB Stratus	QM33240STA	10ms	4500	\$215	----		
4.3GB Stratus	QM34320STA	10ms	4500	\$265	----		
6.4GB Stratus	QM36480STA	10ms	4500	\$349	----		

Seagate		Description		Seagate drives carry a 5 Year Warranty			
Model	Access	RPM	Internal	External			
4.5GB Barracuda 4XL	ST34572N	8.5ms	7200	\$599	\$649		
4.5GB Cheetah	ST34501N	8ms	10000	\$699	\$749		
9.1GB Barracuda 9	ST19171N	8ms	7200	\$1049	\$1099		
9.1GB Cheetah	ST19101N	8ms	10000	\$1199	\$1249		
<b>UltraWide SCSI-3</b>							
4.5GB Barracuda 4XL	ST24572W	8.5ms	7200	\$649	\$729		
4.5GB Cheetah	ST34501W	8ms	10000	\$749	\$829		
9.1GB Barracuda 9	ST19171W	8ms	7200	\$1089	\$1169		
9.1GB Cheetah	ST19101W	8ms	10000	\$1199	\$1279		
<b>Fast SCSI-2</b>							
23GB Elite 23	ST423451N	8ms	5400	\$1989	\$2089		
<b>Fast&amp;Wide SCSI-2</b>							
23GB Elite 23	ST423451W	8ms	5400	\$2089	\$2189		

TOSHIBA		Description		2.5" IDE HARD DRIVES			
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2.1GB Slimline	HDD2716	13ms	4200	\$299	----		
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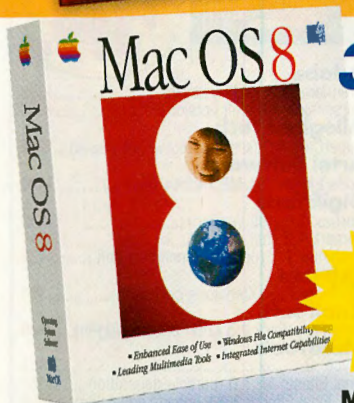






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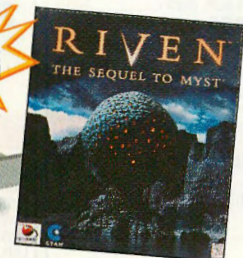
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- Participation.** Sweepstakes contest begins on October 15, 1997, and is open only to U.S. residents who are 18 years or older. Employees of Multiple Zones International, Inc. and its affiliates or subsidiaries, and their immediate family members and/or those living in the same household are not eligible to participate. Sweepstakes limited to one entry per street or e-mail address. Mailed entries must be postmarked by January 31, 1998; electronic entries must be received by 5:00 p.m. PST, January 31, 1998.
- Validation.** The winner will be selected at random on February 28, 1998, and results will be announced on our Web site ([www.maczone.com](http://www.maczone.com)) on March 1, 1998. The winner will also be notified by mail. You may also get this information by sending a separate, stamped, self-addressed #10 envelope after March 1, 1998, to: Multiple Zones 20th Anniversary Macintosh Sweepstakes Winner, 707 S. Grady Way, Renton, WA 98055-3233. The judges' decision will be final.
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#### Is this location:

☐ Home ☐ Business ☐ Both

#### If Business:

Nature of business: \_\_\_\_\_

Education institution? Y \_\_\_\_\_ N \_\_\_\_\_

Number of employees at site: \_\_\_\_\_

Total number of employees: \_\_\_\_\_

#### What platform do you currently use?

☐ PC ☐ Mac ☐ Both

#### Which of the following products do you plan to purchase in the next 6 months?

- ☐ CPU  
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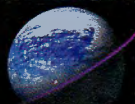
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IBM 3.0gb	4200rpm 13ms w/3yr Warranty	\$359
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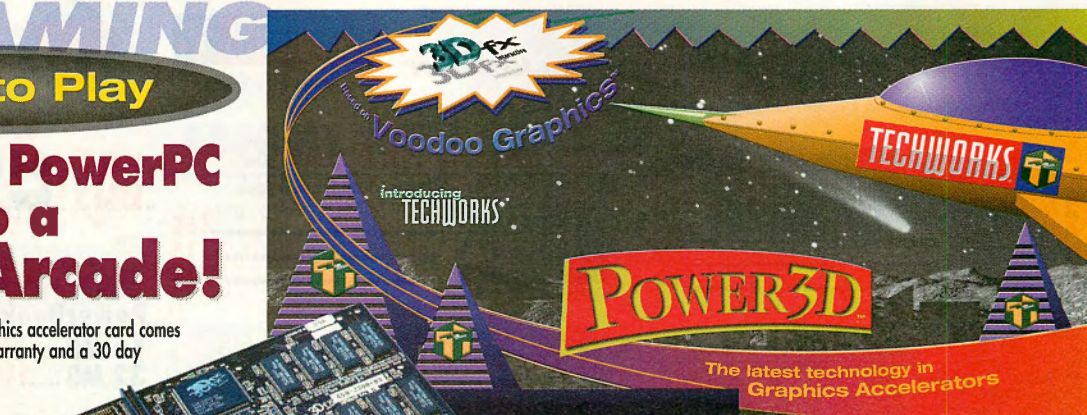


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The Power3D card is dedicated to bringing you the best performance available for MacOS 3D games. Most 3D computer graphics solutions try to be all things to all people. No compromises here. Power3D is designed for one thing only and that is great games. This is truly the most awesome gaming card available on the Mac! Power3D delivers the best gaming experience ever.

The Power3D does not replace your existing 2D graphics, it works with your existing graphics card to provide you the absolute in 3D performance. Install the Power3D in your PowerPC (requires one available PCI slot in your system) and use the provided pass-through cable to turn your PowerPC into a Power Arcade system!

**New Techworks  
Power3D PCI  
only \$199**



**Bundled with these awesome 3D games:**

Quake™: Episode 1 (8 level) with native 3Dfx MacGlide support  
MechWarrior® 2 by Activision 3D RAVE version  
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### Power3D Features

- Turns your PowerPC into a Power Arcade!
- Provides full-screen 3D acceleration
- Supports up to 32,000 (16-bit) colors
- Supports 640x480 full-screen resolution
- Easy install - works with existing 2D video
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- Supports QuickDraw™ 3D RAVE® games
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- Bi-linear filtering smoothes blocky textures
- Anti-aliasing eliminates "jagged" edges
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- MIP mapping eliminates texture "sparkling"
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### Awesome Performance (BENCHMARKS FOR YOU GEEKS OUT THERE!)

- 45 megapixels per second sustained polygon fill with all 3D features enabled!
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The M110 is fully compatible with any powered subwoofer and the M105 BassToaster will also function by itself or with most third party computer speakers, however as a three piece set, this matched loud speaker/subwoofer system provides an astonishing multimedia experience at a truly affordable price. Also, while supplies last, we will include the M110 directional speaker stands (as pictured) for no additional charge. Separately these stands normally retail for \$29.00.

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C-net reviewed this system and listed its retail price at \$269.00!

See its review at: <http://www.cnet.com/Content/Reviews/Compare/Speakers/ss02k.html>

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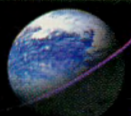
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### 8600/250&300

The Power Macintosh 8600/250 or 300 is Apple's multimedia authoring system for professionals who require optimized performance for creating and communicating their ideas. Its 250 or 300-MHz processor and 1MB of Apple Inline Cache make it twice as fast as last year's Power Macintosh systems. Equipped with a built-in 100MB Zip drive (on some configurations) and 24x-speed (maximum) CD-ROM drive, the Power Macintosh 8600/250 or 300 is considered one of the most powerful desktop computers available to date.



### 9600/300&350

Attention publishers and multimedia professionals. Searching for the fastest, most powerful desktop computer available today? Introducing the Power Macintosh 9600/350, a computer fifteen times faster than the fastest 68040-based system. Equipped with the only 350-MHz processor in its class and 1MB of Apple Inline Cache, the Power Macintosh 9600/350 also comes with a built-in 100MB Zip drive (on some configurations) and 24x-speed CD-ROM drive. The result is outstanding performance that can handle even the most complex color publishing and video editing tasks.



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7300/180	32/2gb/12X -	\$1899
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7300/200	64/4gb/12X -	\$2299
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### 4400/200

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The Apple 6500 Series offers a wide range of system packages making it easy to find the one that best suits your needs



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A 275-MHz processor drives this version of the Power Macintosh 6500, which includes best-selling software programs designed to bring your small business big returns. A 6GB hard disk drive and 48MB of system RAM can handle all your important data-and the Power Macintosh 6500/275 comes with everything you need to get your small business on the Internet, even create your own small business Web page.

### 6500/275 Creative Studio

Powerful creativity demands a powerful computer. The Power Macintosh 6500/275 Creative Studio delivers. Featuring a high-speed 275-MHz processor, 2-D and 3-D graphics acceleration, and a host of advanced video editing functions, the Creative Studio throws open the doors of your imagination. And the 22 high-quality software titles included with the Creative Studio can help transform those ideas into reality. The Creative Studio comes packed with 22 high-quality software titles, including six integrated software studios for video, music, photography, art, 3-D, and Internet media. The Creative Studio comes with the Apple Video System for video input, an Avid Cinema Video Editing System that allows you to produce your own videos, and the Apple TV/FM Radio System, which plays TV and FM radio stations right on your computer.

	Home	Small Business	Studio
6500/225	32/2gb/12X - \$1549	N/A	N/A
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6500/275	N/A	48/6.4gb/12X/Zip - \$2299	64/4gb/12X/Zip - \$2399
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### PowerBooks

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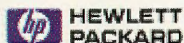
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**What's New**  
 Saturday, December 28: We take a break until January 3, as... Apple buys NeXT! A conference call yields more details. Meanwhile: Apple buys NeXT! We survey the reader reaction. Also: Apple buys NeXT! The top ten side-effects. Quid Pro Quo 1.0 ships, Cyberdog 2.0 goes alpha, and meanwhile, somewhere, Apple buys NeXT!

**This Issue**  
 January 1997: We show you powerful and dangerous ways to customize your Mac, look at QuickTime movie-making and creating cool sounds, and much much more.

**Help!**  
 Our help page answers your questions about the magazine and the disc, lists handy resources for subscribers and provides complete contact information.

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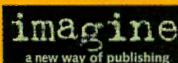
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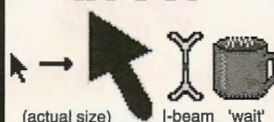
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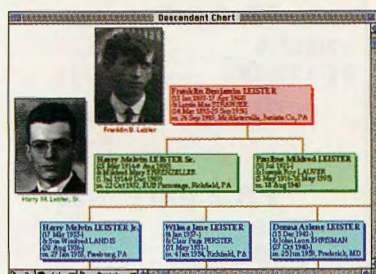


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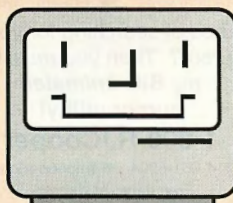
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P6200 8/1.2/CD/14.4 modem (R)	699.00
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PM4400/200 16/2/8x (N)	1299.00
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40 MB 3.5" x 1", SCSI (N)	25.00
Apple 700 MB 3.5" x 1", SCSI (P)	159.00
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External CDROM Enclosure w/cbl (N)	39.00
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# shut down

shut down

## MacAddict Collectibles

**Price:** \$400 million, a board of directors, and control of your company

### Special Features:

- Moveable fingers type cost-cutting emails or grip ax (not included).
- Hair can be left short or grown long for play with Steve while he's creating the Macintosh in the '80s or while he's saving the Mac in the '90s.

### Toys Sold Separately:

- Steve's Deluxe Apple Dream Campus with revolving CEO door
- An ax with real wood handle
- T-shirt collection sporting logos from NeXT, Pixar, and Apple (Apple shirts range from the early Macintosh days to the Think Different campaign)
- Unknown Programmer Action Figure
- Bill Gates Action Figure
- The Larry Ellison Action Figure

### Talking Hair-Grow-Long Steve Jobs Action Figure

Hear  
Steve  
say...

"I love  
my job  
at Pixar."

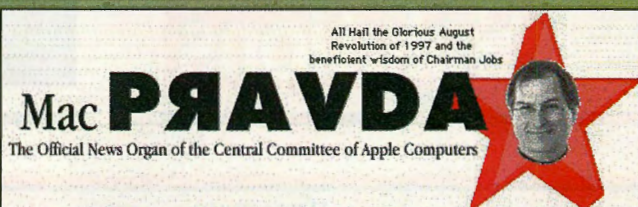
"What did you  
used to do here?  
You're fired!"

"You want  
network  
computers,  
Larry? You've  
got 'em."

"Luke, I am  
your father."



## BETTER RED THAN DEAD



Although this explains the large brick wall and the gun towers encircling the Apple Campus, we think we'll pass on Apple's press junket to its new Siberian plant. For your safety, and the latest official news issued from behind the Cupertino Wall, check out MacPRAVDA at <http://www.turnleft.com/apple>.

## FOOD OF THE GOD

"All the ex-Mac people will tell you, you only drink purple Kool-Aid once." —Former Apple engineer and current Microsoft employee Steve Capps, speaking fondly of his breakup with Steve Jobs in a Salon article at <http://www.salonmagazine.com/sept97/21st/articleb.html>. Capps highly recommends purple Kool-Aid as the ideal complement to Jobs' poison HO HOs.

Here's to  
the crazy  
ones...



"ON SECOND THOUGHT, WHY DON'T WE GO WITH EINSTEIN AFTER ALL."

Doodle by Mark Simmons

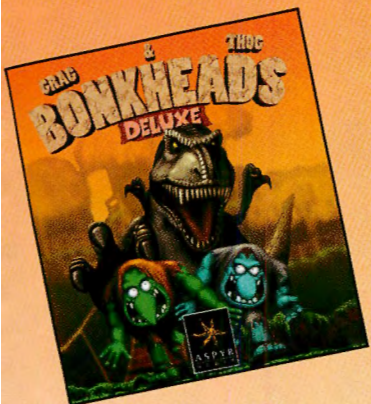
## She's Got Bill's Glasses!

And Chelsea Clinton thought *she* had it bad. To sign baby's first Web page, go to <http://www.babygates.com/baby02.html>.





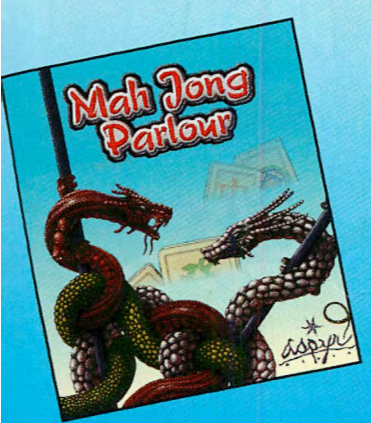
# GRAG & THOG BOKKHEADS DELUXE



**SO ADDICTIVE,  
YOU'LL DEVELOP  
A HUMP.**

Join Grag and Thog in their quest  
to save Trollsville from evil pests.  
100's of levels of utter chaos. 1 or 2  
players, networked & dual play.

# Mah Jong Parlour



**A CLASSIC GAME OF  
TILES & STRATEGIES.**

The true game of mah jong,  
MJP is easy to learn, a challenge  
to master. 1 - 4 players.

"I really can't say enough good things about this game. It rocks."

"Computer Gaming world

"Carmageddon is a truly addictive racing title."

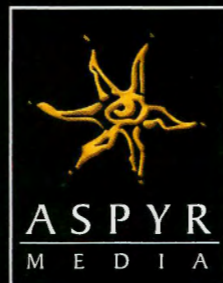
"Next Generation

"The graphics in Carmageddon are incredible."

"The best racing game of the year"

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